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A study of the effect of multisensory writing instruction on the written expression of the dyslexic elementary child

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A STUDY OF THE EFFECT OF MULTISENSORY WRITING INSTRUCTION ON THE WRITTEN EXPRESSION OF THE DYSLEXIC ELEMENTARY CHILD

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Abstract

A STUDY OF THE EFFECT OF MULTISENSORY WRITING INSTRUCTION ON THE WRITTEN EXPRESSION OF THE DYSLEXIC ELEMENTARY CHILD examines the impact of remedial instruction on reading and writing progress of six fourth grade students chosen from three different schools within one school district. These six students, all males, had been previously identified as having characteristics of dyslexia as defined by the protocol in their school district. The remedial instruction for these students was provided in a pullout setting by one itinerant teacher. The instruction was administered in two forty-minute sessions over a period of thirteen weeks. *Project Read* Written Expression was the program used for this instruction.

Every effort was made to maintain as much consistency in the remedial instruction of these students as was possible. There were, however, variables which could not be eliminated. The students' classroom teachers had varying degrees of training and experience in administering instruction based upon a multisensory structured language program. The actual physical setting provided for the instruction varied from school to school, affecting the consistency of instructional time. The willingness and desire to participate, as well as the degree to which each student was supported and encouraged by his teacher and parents, was inconsistent.

Reading progress (skill in decoding and comprehension) was assessed via pre- and post-testing using the *Gray Oral Reading Test-4 (GORT-4)*. Progress in written language skills was assessed via pre- and post-testing using the

Test of Written Language-3 (TOWL-3). Writing samples were collected at each lesson. Testing revealed that some students made progress in reading comprehension. Subtests of the *TOWL-3* also indicated some progress in writing skills.

Chapter 1
Introduction
Statement of the Problem

Literacy, the ability to read and write, is vital to success in today's world. Even menial jobs are virtually unavailable to people who fail to receive a high school diploma. The National Assessment of Educational Progress (NAEP) scores have alerted the public to the state of the country's academic progress. The push for standards began in 1989 when former President George Bush called the nation's governors together for the first National Education Summit, held on the campus of the University of Virginia. The result of that meeting was a set of national goals for education (Merrow, 2001).

The quest for national goals has led states to set standards and employ high stakes testing. Forty-nine states have developed or are developing educational standards, and 28 states either already have or plan to have such tests (Merrow, 2001). In Louisiana, the English Language Arts Standards contain seven standards. These standards form the benchmarks for classroom instruction and for the state high stakes LEAP test. Three of them are related to writing. They are the following:

Standard Two – Students write competently for a variety of purposes.

Standard Three – Students communicate using standard English grammar, usage, sentence structure, punctuation, capitalization, spelling, and handwriting.

> Standard Seven – Students apply reason and problem solving skills to reading, writing, speaking, listening, viewing, and visually representing (Louisiana English Language Arts Content Standards, 2001).

On the high stakes LEAP test given at the end of fourth grade the students are required to write a composition. Topic development, sentence formation, usage, mechanics, and spelling are scored.

One population which is profoundly affected by reading and writing standards is that of dyslexic students. The Louisiana Law for the Education of Dyslexic Students (Bulletin 1903, 2000) defines dyslexia as:

> "a language processing disorder which may be manifested by difficulty processing expressive or receptive, oral or written, language despite adequate intelligence, educational exposure, and cultural opportunity. Specific manifestations may occur in one or more areas, including difficulty with the alphabet, reading, comprehension, writing, and spelling" (2).

In Louisiana these students are served in the regular education program. Under Section 504 of the Rehabilitation Act of 1973 (Bulletin 1903, 2000) they are eligible to receive accommodations such as extended time on tests, but due to their language difficulties struggle to read and write independently. Bulletin 1903 (2000) also defines the appropriate language instruction for identified students. Because reading disabilities receive more attention in school than do writing problems, many students receive little explicit instruction in written language (Scott, 1989).

The Purpose of the Study

The purpose of this study is to determine the effect of remedial instruction in written expression on the reading and writing performance of dyslexic students. Dyslexia, a language processing disorder which is manifested by difficulty with reading, writing, and spelling, affects not only a student's ability to read effectively, but also his or her ability to write appropriate sentences, paragraphs, and stories. Decoding and comprehension skills are often addressed in remedial programs; seldom is specific instruction given to assist the child with sentence construction.

A balanced literacy program is currently encouraged in education (Thompkins, 2001). This instruction should include the experiences of reading and writing, not just the isolated skills. When a child exhibits difficulty with reading, the tendency is to focus on the components of successful reading (decoding and comprehending) to the exclusion of other language arts skills, particularly in a pullout program. Stotsky (1983) reports that in studies specifically designed to improve writing, the children's reading performance improved as well. The potential contribution of writing to reading runs much deeper than a concern of form or style. As children become authors, as they struggle to express, refine, and reach audiences through their own writing, they actively come to grips with the most important reading insights of all (Graves, 1983).

Developmental issues in written language have been studied (Litowitz, 1981), and the written compositions of normal students have been compared to those of learning disabled students (Graham, Schwartz, & MacArthur, 1993;

Johnson & Grant, 1989). The written language problems of students with language and/or learning disabilities have been described by a number of authors (Bos, 1988; Graves & Hauge, 1993; Scott, 1994). Perhaps because of the interest in phonological awareness in the 1990's, several studies have addressed the relationship of spelling and phonological understanding (Adams, 1990; Lindamood 1994; Moats, 1995; Worthy & Invernizzi, 1990). Written language, however, is much more than spelling skills (Scott, 1999).

The Louisiana State Department of Education considers written communication to be an important skill, as evidenced by inclusion of writing skills in the English Language Arts Content Standards Two, Three, and Seven (Louisiana English Language Arts Content Standards, 2001). This study explores the effect of the explicit teaching of written language, including syntax and semantics as well as spelling, on the literacy progress of dyslexic students. Ethnographic methods inform this research by providing case studies of six fourth grade children, giving detailed accounts of their literacy progress as a result of their instruction in written language.

The Setting

This study was conducted with fourth grade elementary students in public schools located in a large school district in north Louisiana. This parish covers 882 square miles and includes eleven municipalities in urban, suburban, and rural settings. The population of 248,000 includes a diverse group of people. Although the economy was historically based on the oil industry and cotton

farming, the focus has shifted to other commercial and industrial entities. In addition to tourism and casino gambling, there are industrial plants, medical schools, a private college, and a state university.

The Schools and Community

The educational system of Davis School District consists of both public and private schools. The public system serves approximately 45,000 students in 74 schools: 42 elementary schools, 6 elementary/ middle schools, 11 middle schools, 11 high schools, and 4 unique schools. Diversity is evident in both student population and school communities. Although the population of the parish is 59% Caucasian, 40.1% African American, and 0.9% other, the public school distribution is slightly different. Student ethnic composition is about 63% percent African American, 36% Caucasian, and 1% other nationalities. Approximately 43.6% of the teachers have a master's degree or higher.

Five years ago parental interest in appropriate public education for their dyslexic students led to the formation of a Dyslexia Department within the 504/Special Services Department of this school district. Employees in the Dyslexia Department, former classroom teachers, provide guidance to the individual schools in the assessment/ identification of students who should be receiving services as dyslexic students. As a result, the district has identified 425 students. This number provides an appropriate pool from which to choose students for a study. In addition to assessing children to determine eligibility for services as a dyslexic student, the itinerant teachers

in the Dyslexia Department provide tutorial assistance to the identified students and offer training for their classroom teachers. The local school principals determine how the students are to receive appropriate instruction. Some receive remedial instruction in a pullout program; others are taught by classroom teachers who have been trained in multisensory instruction. Pseudonyms have been given to all participants and research sites mentioned in the study.

The Students

Students in Davis School District must meet certain criteria to qualify for services as dyslexic students. Through Bulletin 1903 the State Department of Education provides for the identification of children with characteristics of dyslexia by the local school level committees. Using information from a variety of sources, including an assessment provided by the members of the Dyslexia Department or a private evaluation, the School Building Level Committee must determine whether a child meets the following criteria (Bulletin 19093, 2000):

- The student has adequate intelligence demonstrated through performance in the classroom appropriate for the student's age, or on standardized measures of cognitive ability.
- The student demonstrates difficulties in areas which are often unexpected in relation to age, previous instruction, and other cognitive and academic abilities. The student has had extensive remediation/assistance in order to maintain grades. However, deficits were evident prior to remediation.

The student must demonstrate at least 5 out of 6 of the following characteristics:

- •lack of or limited phonological awareness
- •common error patterns in reading and learning behaviors, such as:
  - >reading, decoding inaccuracies in single words and nonsense words (e.g., detached syllables)
  - >slow reading rate
  - >omissions of, or substitutions of, small words (e.g., plant/pilot, a/the, of/for/from, three/there)
  - >reduced awareness of patterns in words
  - >difficulties generalizing word and language patterns
- •language (oral or written, receptive or expressive) is simplistic or poor in relation to other abilities
- •errors in spontaneous spelling
- •spontaneous written language is very simple or poor in comparison to spoken language, and
- •spontaneous written language shows poor organization and mechanics (16).

These characteristics must significantly affect the student's academic progress. In Davis School District 425 students have been identified as dyslexic. Of those students, 232 are at the elementary school level, 117 are in middle school, and 76 are high school students.

Six of the 232 students in elementary school who have been identified as dyslexic by the school system were chosen for this study. They participated in a pullout remedial program consisting of multisensory structured language instruction with a focus on written language.

Significance of the Study

Although more persons than ever possess some literacy skills, the level of literacy that is necessary for functioning within the world has been increasing (Kennedy, 1993). People are often judged as intelligent or employable by the way they communicate orally and in writing. For many years literacy teaching focused on reading, but in the past two decades more attention has been devoted to writing (Calkins, 1994; Graves, 1983). The Louisiana English Language Arts Content Standards (2001) reflect the expanded view of literacy. Students are expected to apply reason and problem solving skills to reading and writing. Clarity in writing is expected to be evident in every subject area. Increasing interest is being directed to developing methods for assessing and facilitating students' writing (Gentile, 1992).

Research in emergent literacy has documented close connections between reading and writing (Scott, 1999), and young children's "invented spelling" is thought to reflect a broader facility in phonological awareness that is so important to reading (Read, 1986). Throughout school, writing and reading are inextricably connected. Children with poor phonemic awareness struggle to connect sound to symbol for reading. This difficulty is mirrored in an inability to decide which letters spell the sounds in words as they write.

Students with reading disabilities will have difficulties of such a magnitude that academic survival is threatened and future options narrowed. Although these students may have talents in music, art, sports, and other areas that do not rely on language-based activities, those

abilities are thwarted by an inability to read and write appropriately in school. The academic subjects, those that rely heavily on reading and writing, must be mastered before the student is allowed to participate in the non-academic activities.

One of the characteristics of dyslexia is difficulty with written language; therefore, many dyslexic students will struggle to write appropriately. Although the student may orally explain an answer with great detail, frequently the written responses are simplistic. Sentences may be short and provide little information, or they may be run-on sentences that are difficult for the reader to understand.

In Louisiana, as well as in other states, being identified as a dyslexic student does not exclude a child from taking standardized tests. The fourth grade student must write a composition on the LEAP test. While the mechanics of written language are frequently addressed in the classroom, this instruction often focuses on a formula for paragraphs. For example, the students are told to have an introductory sentence that introduces the topic of the paragraph. This is followed by three sentences containing key facts and three sentences with supporting details. The final sentence summarizes the topic sentence. The students are encouraged to count the number of words they have written and strive for a paragraph of a certain number of words. While this information is helpful, the effectiveness of a paragraph is dependent upon well-written sentences. Not only must the subject and verb agree, but also the clarity of the sentence depends on the description of the subject and the expansion of the predicate.

The dyslexic student requires guidance in understanding the structure of words and the structure of sentences, as well as the structure of paragraphs. Instruction should include how to communicate more effectively by being more specific in describing the subject and elaborating on the action of the subject. This study explores the progress of language-impaired students in the quality of their written language as they participate in remedial instruction in a specific written expression program. Because today's classrooms include students with a variety of learning styles and abilities, this information is of significance to any classroom teacher.

This research used a mixed method design to portray the writing of six dyslexic fourth grade students. By focusing on the issue of the structure of the English language, these students were guided through the semantic process involved in writing narrative, expository and persuasive material. This study may offer insights into how other educators, in other places and with other children, might provide more effective instruction for children with language processing difficulty.

Research Questions

1. Does the student's reading (decoding and comprehension) ability improve after instruction in a multisensory structured language program including a written language component?
2. How does instruction in a multisensory structured language program containing a specific written language component affect a student's written language?

3. How does a student's written language performance in a pullout setting compare to that student's written language performance in the classroom setting?

Definition of Terms for the Purpose of This Study

Accommodation - any technique that alters the academic setting or environment (generally does not change the information or amount of information expected to be learned).

Alphabetic principle - the use of letters and letter combinations to represent phonemes in an orthography.

Automaticity - fluent performance without the conscious decoding of words.

Consonant - a phoneme that is formed by the obstruction of the flow of air with the teeth, tongue, or lips; sound can be voiced or unvoiced.

Constitutional origin - relating to the origin of the dyslexic student's disability; the nature of the disability does not result from injury, but rather is inborn.

Digraphs - two consonant letters that make an unexpected sound (sound does not relate to the sounds of the individual letters), such as th, sh, ch, wh.

Diphthongs - two vowel letters that make an unexpected sound (sound does not relate to the sounds of the individual letters), such as oi, oy, au, aw.

Dysgraphia - difficulty with producing written symbols, usually resulting in slow and poor quality handwriting.

Dyslexia - a language processing disorder which is manifested in a difficulty with reading, writing, and spelling.

Grapheme - a written letter.

Modification - any technique that alters the work required in some way to make it different from the work required of other students in the same class.

Morpheme – the smallest unit of meaningful sound (believe has one morpheme, believable has two morphemes, unbelievable has three).

Morphology – the study of meaningful units of language and how they are combined in word formation.

Multisensory structured language program - the type of program that is mandated by R.S. 17:7(11), the Louisiana Law for the Education of Dyslexic Students (the specific program components are listed in Chapter 2).

Orthography - a writing system - includes patterns that are used to represent sounds, such as igh to spell i in light.

Phoneme - a speech sound.

Phonemic awareness - the awareness that words are made up of speech sounds.

Phonology - the study of the speech sounds of a language and their underlying rules of usage.

Section 504 of the Rehabilitation Act of 1973 - Federal law (29 U.S.C. Secs. 706(7), 794, 794a, 794b) that states that disabled individuals must not be subject to discrimination solely by reason of their handicap.

Syllable - a word, or part of a word, with one vowel sound.

Syntax - the study of how sentences are formed and of the grammatical rules that govern their formation.

Vowel - a phoneme that is open (not blocked by the teeth, tongue, or lips) and voiced.

Vowel team - single vowel sound spelled with two vowel letters - phoneme is the sound of one of the vowel letters, such as ai, oa, ea.

Chapter 2

Review of the Literature

What is dyslexia? What are the educational implications for children with dyslexia, particularly in written expression? In the review of the literature for this study, these questions will be addressed by focusing on the following areas: a) historical context for defining dyslexia, b) educational strategies to be used with dyslexic students, and c) written language development.

Historical Background

Identification and Description

Dyslexia is a word that often elicits emotional responses. It has been defined in a variety of ways, depending on the perspective of the person offering the definition. The word *dyslexia* is derived from both Latin and Greek. The Latin origin is *dis* (difficult) + *legere* (to read), or Latin *dys* + Greek *lexis* (speech). Thus, the literal translation of dyslexia is difficulty with reading and speaking. Although it is primarily a medical term, it has definite educational implications.

In the medical field dyslexia was originally seen as one of the family of language disorders classified under the umbrella of aphasia (literally, loss of speech). Kussmaul is credited with being the first to point out the malady of "word-blindness" in 1877 (Hinshelwood, 1917). He observed adult patients who lost their ability to read words although their sight, intellectual ability, and power of speech were unaffected. The brains of some of these patients were studied after their death, revealing lesions in certain areas. The foundations of medical research began as early as 1892 when Dejerine established an anatomical

location for “pure word blindness” (Richardson, 1992). The word “dyslexia” was first used by German opthalmologist Berlin of Stuttgart in 1887 (Crichley, 1964).

Dr. James Hinshelwood, an eye surgeon in Glasgow, continued the studies of adults with word-blindness. After he published an article in the *Lancet* in December, 1895, Dr. Pringle Morgan, a general practitioner, contacted him about an intelligent 14-year-old boy who was unable to read. In May, 1900 Hinshelwood (1917) again published an article in the *Lancet*, saying:

> “I have little doubt that these cases of congenital word-blindness are by no means so rare as the absence of recorded cases would lead us to infer…It is a matter of the highest importance to recognize the cause and the true nature of this difficulty in learning to read which is experienced by these children, otherwise they may be harshly treated as imbeciles or incorrigibles, and either neglected or punished for a defect for which they are in no wise responsible” (42-43).

Hinshelwood (1917) was the first physician to advocate a specific instructional approach for written language disorders in children. He advocated one-on-one teaching, utilizing what he called the “alphabetic method” in a multisensory approach: “the simultaneous appeal to as many cerebral centers as possible” (106).

Critchley (1964) closes the early history, or the period of identification and description of dyslexia, in 1917 with Hinshelwood's publication of the monograph "Congenital Word Blindness." This was followed by what he regards as analysis and discussion.

Scientific Analysis

In 1925 the first report on individuals with word blindness appeared in the American medical literature (Critchely, 1964). Neuropathologist Samuel T. Orton published "Word-blindness in School Children" in the *Archives of Neurology and Psychiatry.* That article was the first of many that he wrote concerning observations of patients with language learning problems. He developed neurophysiological explanations for the reading and writing difficulties of otherwise intelligent children. He also noted that many of his cases exhibited significant disorders of spoken language (Orton, 1937).

More recent studies, such as those of Geschwind and Levitsky (1968), Galaburda (1985), and Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch (1992), clearly show the existence of physical, structural alteration rather than acquired damage in the brains of some individuals with dyslexia, just as Orton had suspected. These studies employed functional magnetic resonance imaging (fMRI) which enables researchers to look into the brain as it is working, revealing different brain activation patterns in the brains of dyslexic individuals and non-dyslexic individuals.

In a publication of the International Dyslexia Association (IDA), Sylvia Richardson (1994) reports that several studies have suggested the genetic factors involved in dyslexia. About 50% of those identified with dyslexia have family members with the same characteristics. In some families there appears to be a genetic marker on chromosome fifteen. Recent research suggests that in some families there is the possibility of a genetic marker on chromosome six.

Definition of Dyslexia

Language Processing Disorder

The literature on the language basis of dyslexia has been slow to affect the way dyslexia is defined in everyday practice (Catts, 1989). Different groups have devised their own definitions, leading to confusion about this disorder. Although dyslexia, a language processing disorder, is a medical term, educators seek to explain the implications of this phenomenon in the classroom. The World Federation of Neurology defines dyslexia as a disorder "manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and sociocultural opportunity" (Shaywitz et.al., 1992).

Educational institutions are more likely to use the definition set forth by the IDA. Richardson (1994), defines dyslexia as:

> "a specific developmental language processing disorder, or learning difference. It affects reading, spelling, writing, and often oral language. It exists in spite of normal intelligence, a normal sensory apparatus, and conventional teaching methods. The term 'developmental dyslexia' is used when there is no history of brain injury (acquired dyslexia) and when there is a family history of disorders of reading, spelling, written and/or spoken language" (1).

Catts (1989), in another IDA publication, proposes the following definition:

> "Dyslexia is a developmental language disorder that involves a specific deficit(s) in the processing of phonological information. The disorder is generally

> present at birth and persists into adulthood. A prominent characteristic of the disorder is a specific reading disability. Preceding, accompanying, and following this reading disability, the disorder manifests itself in various difficulties in phonological coding, including problems in encoding, retrieving, and using phonological codes in memory. In addition, difficulties may be observed in speech production and in the metalinguistic awareness of speech sound segments" (58-59).

The Louisiana Law for the Education of Dyslexic Students (Bulletin 1903, 2000) defines dyslexia as a language disorder manifested by difficulties in reading, writing, and spelling.

Incidence of Dyslexia

Another factor contributing to the confusion regarding dyslexia is that dyslexia is not an all-or-none phenomenon; it occurs in varying degrees of severity (Shaywitz et.al., 1992). The number of people who display the characteristics of dyslexia will vary, according to the definition used. While Shaywitz et. al. (1992) reported a five percent occurrence in the general population to fit their suggestion of a lower tail of a normal distribution of reading ability, other groups have reported different numbers. Richardson (1994) suggests that as many as 15% of American students may be classified as dyslexic. The International Dyslexia Association (2001) reports that the National Institutes of Health estimate that approximately 15% of the U.S. population is affected by learning disabilities. Of students with learning disabilities who receive special education services, 80-85% have their basic deficits in language and reading.

The picture becomes further complicated by the variety of settings for providing educational services. Some children are served in a special education setting guided by the Individuals with Disabilities Education Act (IDEA). Others remain in regular education classes with accommodations provided by Section 504 of the Rehabilitation Services Act. Some who are in regular education classes also require the services of a speech/language pathologist, which in some states requires a special education document known as the individual education plan (IEP). In Louisiana a student who is considered dyslexic must be served in the regular education program, and in Davis School District dyslexic students must have a Section 504 Individual Accommodation Plan (IAP). However, those students who receive the services of a speech/language pathologist have an IEP that also contains the appropriate accommodations and method of instruction.

Many dyslexic students also exhibit other characteristics, such as Attention Deficit Disorder (ADD/ADHD), which may impede acquisition of reading skills. Determining whether the reading disability is due to a lack of ability to attend or to a language processing difficulty becomes a challenge for the school personnel. In addition, allergies which result in decreased hearing and poor auditory discrimination may add to the difficulties these children encounter in participating effectively in academic language activities (Richardson, 1994).

In this study, the arguments for various methods of identifying dyslexic students, such as discrepancy formulas and IQ's, will not be addressed. Because this study was

conducted in a state which has a law concerning the identification and education of dyslexic students, the guidelines set forth by that law were used. (Identification procedure was listed in Chapter 1; educational requirements will be addressed in this chapter).

Educational Implication of Dyslexia

Orton, like Hinshelwood, recognized that the treatment for dyslexia must be educational. His emphasis on the physiological nature of the disorder and his demonstrations that it was remediable by appropriate diagnostic and educational approaches had a profound and continuing impact on identification and education of dyslexic individuals. He employed dramatic case studies to demonstrate the devastating secondary damage caused by misunderstanding and inappropriate educational management (Masland, 1989). Orton's work with dyslexic people was considered to be extremely valuable, and in 1949, a year after his death, The Orton Dyslexia Association was founded to promote the study and treatment of dyslexia. Today this organization is international, and the name has been changed to the International Dyslexia Association (IDA).

As stated previously, dyslexia is defined as a *language processing disorder*. It is more than a specific reading disability; it is a developmental language disorder (Catts, 1989). While children who display the characteristics of this language disorder can be taught to interact appropriately with written language, success in school is often dependent upon a specific type of instruction.

In Louisiana, as in several other states, there is a law which dictates the type of instruction a dyslexic student must receive (Bulletin 1903, 2000). Once the School Building Level Committee (SBLC) determines that a child meets the criteria to qualify for services as a dyslexic student, he must receive instruction in a multisensory structured language program in a regular education setting. This instruction shall consist of specific program content and a delivery system as described below:

- Content Components
  - Language-based instruction refers to a program that provides instruction that integrates all aspects of language:
    - > Receptive (listening and reading);
    - > Expressive [oral expression (word finding, sequencing), written expression (spelling, mechanics, coherence)]; and
    - > Handwriting.
  - Phonological Awareness refers to an understanding that words are made up of individual speech sounds and that those sounds can be manipulated.
    - Rhyming;
    - Recognition of initial, final, and medial sounds;
    - Recognition of vowel sounds;
    - Recognition and identification of the number of syllables in a word;

- Sound blending of phonemes (sounds) in words and detached syllables;
- Phoneme segmentation of real words and detached syllables; and
- Phoneme manipulation.

• Phonetics refers to the system by which symbols represent sounds in an alphabetic writing system.

> Accurately pronouncing each phoneme represented by a given grapheme (symbol to sound); and

> Writing the graphemes that represent each given phoneme (sound to symbol).

• Syllable Instruction refers to instruction in kinds of syllables and their application to reading. A syllable is a word or part of a word that contains one sounded vowel.

• Linguistics refers to the science of language, including phonology, morphology, syntax and semantics; the study of the structure of language and its relationship to other languages.

• Meaning based instruction refers to instruction provided in word and sentences to extract meaning in addition to teaching isolated letter-sound correspondence.

> Instruction in morphology that includes identification of morphemes and their functional use in written and spoken words;

> Instruction of syntax to include sentence construction, combining, and expansion in both narrative and expository text;

> Instruction of semantics to include vocabulary acquisition, idioms, figurative language; and

> Instruction in comprehension of narrative and expository text.

• Instruction in Reading Fluency refers to the accuracy; appropriate use of pitch, juncture and stress; text phrasing; and rate at which one reads.

> Provision of opportunities for substantial practice and continual application of decoding and word recognition to work toward automaticity;

> Provision of opportunities for reading large amounts of text

* at the student's independent reading level (with 95% accuracy), and

* with specific practice in skills being learned.

• Phonics refers to instructional practices that emphasize how spellings are related to speech sounds in systematic ways.

•Instructional Methodology for Students with Characteristics of Dyslexia (Delivery of Instructional Content)

• Direct Instruction: an instructional approach that involves direct student-teacher interaction and diagnostic teaching.

• Simultaneous Multisensory: an instructional approach that uses a simultaneous combination of internal learning pathways - visual, auditory, kinesthetic, and tactile - to achieve proficiency in language processing.
• Synthetic to Analytic Phonics: an instructional approach that teaches the students the sounds of the letters first and then combines or blends these sounds to create words. (Analytic phonics uses prior knowledge of letters and their corresponding sounds to decode and form new words. Synthetic phonics teaches students the sounds of the letter first and then combines or blends these sounds to create words.)
• Systematic Delivery: an instructional approach in which material is organized and taught in a way that is logical and fits the nature of our language. It refers to the way sounds combine to form words and words combine to form sentences to represent knowledge. The ways are determined by a system of rules.
• Sequential Delivery: an instructional approach in which the learner moves step by step, in order, from simple, well-learned material to that which is more complex, as he or she masters the necessary body of language skills.
• Cumulative Delivery: an instructional approach in which each step is incremental and based on those skills already learned.

- Individualized Instruction: an instructional approach in which teaching is planned to meet the differing needs of learners who are similar to each other, but no two exactly alike.
- Automaticity of Performance: the fluent processing of information that requires little effort or attention as sight word recognition. Adequate practice with decodable text is to be provided for mastery of skills and application of concepts (17 - 19).

This multisensory structured language program is to be routinely provided within the regular school day a minimum of 150 minutes per week (Bulletin 1903, 2000). The local schools determine whether the instruction is provided by the classroom teacher, a teacher in a pullout program, or in a combination the two settings. The school districts may choose any structured language program to address the needs of their students, as long as the criteria listed above are met. Several programs that do meet the criteria are suggested (Bulletin 1903, 2000):

1. *Alphabetic Phonics*
2. *Essential Language Structures*
3. *Language!*
4. *Project Read*
5. *Slingerland*
6. *Wilson Reading System*

Through a grant the State Department of Education has provided training for classroom teachers in *Language!* and *Project Read* over the past six years. Because *Project Read* was designed for classroom use rather than language therapy, Davis School District has chosen *Project Read* for the elementary students.

Multisensory Structured Language Instruction

While multisensory structured language (MSL) programs vary, they all have common roots in the Orton-Gillingham method. Sheffield (1991) refers to the Orton-Gillingham method as a philosophy of teaching rather than a system. The most complete programs cover all aspects of our total written language and are built on a deep knowledge of the English language. They involve visual, auditory, and kinesthetic/tactile (VAKT) strategies *simultaneously*.

Beginning in 1929, Anna Gillingham, an educator and school psychologist, sought advice from Orton, the neuropathologist, in understanding the difficulties of intelligent children who struggled to learn to read and write. Gillingham, with the assistance of Bessie Stillman, had already begun devising a program to help these children learn to read. This program underwent several revisions through the years, and was published as the Gillingham-Stillman Manual. Many of the MSL programs today were developed by people who were trained by Anna Gillingham (McClelland, 1989). All six of the programs suggested for use by the Louisiana State Department of Education are based on the Orton-Gillingham method.

The Orton-Gillingham approach ties writing tightly into the learning process. A student is directly taught reading, handwriting, spelling, and expressive writing as part of one logical body of knowledge. Children are taught to use language as they think about language. Orton-Gillingham programs teach what is reliable about language so that the student gains a clear idea of what he can depend on and what he must simply learn (Sheffield, 1991).

Project Read

One MSL program is *Project Read*, developed by a classroom teacher, Victoria Greene, with the assistance of Dr. Mary Lee Enfield, coordinator of programs for students with learning disabilities in Bloomington, Minnesota. Greene had been trained in an Orton-Gillingham-Stillman Approach and implemented her classroom version of the method in classrooms beginning in 1969. This instruction was her effort to combat declining district reading scores, long waiting lists of students in need of remediation/ special education, and the need for a successful learning disability program (Enfield, 1995).

Project Read is based on the combination of three basic principles of instruction:

1) Direct teaching of the concepts and skills of language arts.
2) Presentation in a logical, dependent order.
3) Delivery through multisensory techniques and materials (Enfield, 1995).

Although originally the program contained only the decoding/encoding or Phonology component, it became apparent that the majority of the students involved in the program had more pervasive language learning problems. Reading Comprehension (Story Form for narratives and Report Form for expository) and Written Expression (Framing Your Thoughts) were added to form the complete "Language Circle" (Enfield, 1995). Although the program was designed for use in the regular classroom, it is also used in pullout programs in Davis School District.

Each component in *Project Read* provides specific sequential and cumulative instruction in skills necessary for literacy. The structure of words is taught in

Phonology/Linguistics. Story Form and Report Form teach the structure of narratives and expository writings to enable the reader to comprehend what is read. Written Expression provides instruction in the structure of sentences and paragraphs.

In the Phonology and Linguistic components, students are taught the alphabetic principle. Our language consists of sounds that can be represented by letters or groups of letters. The twenty-six letters of our English alphabet are used to represent forty-four speech sounds. If our language had one sound per letter, learning to read and write would be much simpler. The sounds are organized on a phoneme (sound)/ grapheme (letter) chart containing six columns:

1. consonant sounds
2. digraph sounds
3. short vowel sounds
4. long vowel sounds
5. vowel diphthongs
6. r-controlled vowels

The most common spellings of the sounds are listed first on the phoneme/grapheme chart. This enables a student to choose the most likely spelling of a sound that is represented by multiple letters. There are twenty lines in the consonant column, meaning there are twenty consonant sounds. The first letter is b. The /b/ sound is generally spelled with the letter b. The second letter is c. This letter doesn't have its own sound in the English language. It generally has the /k/ sound or the /s/ sound, and the first sound children learn for the letter c is /k/ as in cat. By number 2 on the phoneme/grapheme chart there are five blanks for the spellings of /k/. As the spellings are introduced, the students write c, k, ck, ch, que. The first

three are the most common spellings of /k/ and should be taught by the end of first grade. Students are shown a list of words using the c spelling of /k/ at the beginning of the word. They are guided in discovering that the c is generally used at the beginning of the word when the second letter is a, o, u, or a consonant. The same is done with words beginning with the letter k. Before an e, i, or y the letter k must be used for the /k/ sound. The ck is used at the end of a one-syllable word after a short vowel; k is used at the end of a one-syllable word after anything else; c is used at the end of multi-syllable words. These rules assist the student in both reading and spelling. A sample phoneme/grapheme chart is included in Appendix N. The students are given a blank chart to fill out as the sounds and letters are introduced.

In *Project Read* there are four digraphs (two consonant letters coming together to make an unexpected sound). In Phonology they are introduced as the "h brothers" because they end with the letter h. These digraphs are sh, ch, th, and wh. Other two letter combinations, such as ph and ck are taught as spellings of the sounds /f/ and /k/.

Students learn that a syllable is a "word or part of a word with one vowel sound." Long words can be easily broken into bite-sized pieces by identifying the vowel sounds and breaking the words into syllables. In *Project Read* there are seven syllable types:

1. open syllable (ends with vowel, vowel sound is long - no)
2. closed syllable (ends with consonant, vowel sound is short - not)
3. magic e syllable (vowel-consonant-e - e is silent, vowel is long - note)

4. vowel teams (two vowel letters making the sound of one of the vowel letters - goat, bail, head)
5. vowel diphthongs (two vowel letters making an unexpected sound - boy, coil, how)
6. r-controlled vowels (when r comes after a vowel it usually changes the sound of that vowel - star, girl, hurl)
7. consonant-le syllable (ble, tle, ple, gle - stable, gentle, apple, giggle)

In Linguistics the students begin to learn about prefixes and suffixes. Knowledge of the meanings of the Latin, Greek, and Anglo-Saxon affixes and word parts enable students to read and comprehend more easily.

Comprehension of narratives is taught in Story Form. A graphic organizer assists students in locating and recording the main characters and setting (time and place) of the story. The heartbeat of a story is the conflict the characters encounter as they attempt to reach a goal or solve a problem. As soon as the problem of the story is identified, the students begin to chart the action taken to solve the problem or reach the goal and the events that prevent them from accomplishing that task. After the problem is solved or the goal is reached there is generally falling action to complete the story.

Comprehension of expository passages is taught through identifying the key facts and supporting detail in each paragraph. After the subject of the report is determined, students begin to outline the report. The key fact for each paragraph is represented by a Roman numeral, and the supporting details are listed underneath each Roman numeral as A, B, C., etc. After all the key facts are determined, the student can write a summary sentence using these key

facts. This exercise not only assists the children in understanding and remembering the important parts of the report, but also guides them in writing reports.

Written Expression is the component used in this study. It is designed to teach the foundational concepts and skills of written language. The emphasis is on understanding the function of words in the structure of a sentence and on paragraph development. It is a conceptual approach to teaching the grammatical structure of our language. This program includes lessons on paragraph development for the five types of paragraphs: descriptive, informative, procedural, persuasive, and compare and contrast. However, time constraints of this study prevented instruction in paragraph development.

Before attempting to write a paragraph, students must first understand how to write a sentence. To assist the students in understanding structure of a sentence, the first concept introduced is a "bare bones" sentence, a two-word sentence containing the subject and predicate. A sentence is defined in a formula that states that the subject and the action of the subject equal a complete thought. Symbols are assigned to the various components of the sentence to enable students to diagram.

After practice creating "bare bones" sentences, the students are led into the second concept in which they expand the meaning of the sentence by adding information telling where, when, how, or why the action took place. Clue words are provided to assist them in identifying the type of predicate expander. For example, "how expanders" are usually words that end in -ly or phrases beginning with the words like, with, or without. Using a "good bare" bones sentence as a foundation, students are encouraged to write

sentences with predicate expanders. They are also guided in identifying the functions of words in sentences on worksheets. An example of a sentence with all four predicate expanders would be "The dog barked loudly at the visitors last night because he was protecting his home." ("Bare bones" - dog barked [how] loudly [where] at the visitors [when] last night [why] because he was protecting his home) The students use symbols to identify the different parts of the sentence (symbols are listed in Appendix L). They write whether the expander answers where, when, why, or how near the symbol.

Next students are guided in adding the third concept, subject describers. They are shown five ways to describe the subject - physical characteristics, behavior/personality, number, ownership, and set aparts (description of the subject that comes between the subject and the verb). As they identify the subject describers in sentences, they also tell how the word or phrase describes the subject.

Each concept teaches a specific component of a sentence. The function of the word or phrase is taught before the label is added. Direct objects are introduced as predicate expanders that answer “what” or “whom” of the action. Indirect objects place the “where” in front of the “what” or “whom.” After the students learn the function of various words in sentences, they can add the labels such as noun, verb, adjective, prepositions to match the language being used in their classrooms.

Because dyslexic students have difficulty understanding written language, they are easily confused as sentence structure becomes more complex. To help them comprehend more readily they are encouraged to first find

the "bare bones," or the subject and the verb. Knowing that the verb must be the action of the subject assists them in understanding the central message of each sentence. This process enables them to read and comprehend sentences like "With a cast on his right leg, Will hobbled clumsily down the hall."

Developmental Issues in Written Language

Acquiring the ability of speech, or learning to talk, is a natural process. Writing, however, appears comparatively late in the cultural history of mankind, and it follows considerable cognitive and linguistic development in the psychological history of each individual (Litowitz, 1981). One of the major difficulties of early writing is that young writers must focus their conscious attention on the ideas they wish to express while still being consciously aware of their less-than-automatic writing skills. Early writings may combine drawing, letters, and words. As children who have difficulty writing become increasingly aware of the limitations of their abilities, they become less willing to write, much as a person who is not adept in art will lose interest in drawing (Gardner, 1980). While drawing becomes an optional activity, writing becomes increasingly necessary.

Writing is an area of great difficulty for a majority of children with developmental language-based reading difficulties. It involves a complex mental process requiring a high level of abstraction, elaboration, conscious reflection, and self-regulation (Scott, 1999). Dr. Mel Levine (1994), a pediatrician who specializes in

children with learning differences at University of North Carolina at Chapel Hill, suggests that the most difficult task we ask a student to perform is written expression. He developed a task analysis of spelling, showing the mental processes involved in just one component of writing. Accurate patterns of spelling require the following competencies:

1) Phonological coding – the ability to represent English language sound with appropriate letter connections (phonological awareness).

2) Graphemic retrieval – the ability to recall the visual configurations of words. During spelling the child needs to be able to visualize at least the general appearance of the word to be spelled.

3) Segmentation – the ability to take apart words and put them back together again. Spellers need a strong sense of the component parts of the words they are attempting to spell.

4) Rule recall – the ability to appreciate and remember rules governing spelling.

5) Attention to detail – the tendency to focus on the precise internal characteristics of words.

6) Semantic networking and appreciation of morphology – an awareness of how words relate in their meanings, their roots, and their common derivations. (The *u* in "industry" is easier to remember if the child relates it to "industrial.")

7) Retrieval memory – rapid and precise access to stored spellings. Good spellers must retrieve convergently, and often at the same time that they are

recalling other materials, such as punctuation, letter formation, and facts.

8) Reading ability – strong word decoding skills (Levine, 1994).

The texts produced by children with reading disabilities are shorter, more poorly organized, and lack conventional structure. The writings show confusion with referents, and the sentences contain unrelated information. Spelling and punctuation errors are frequent. They are unable to consciously monitor and regulate the strategies necessary for better composition. Their writing is a permanent record of such difficulties (Scott, 1999).

Developmental Stages of Spelling

In an effort to understand how children learn to spell, many people have examined the spelling of children at different ages. The spelling errors of children can provide an insight into their understanding of orthography. Charles Read (1986) and Carol Chomsky were the first to explain how early preschool children's spelling evolves from their developing awareness of phonology as well as their knowledge of the alphabet. Their studies indicate that neither reading nor spelling ability develops in a linear, additive fashion. Rather, the connections children make between sounds and symbols are mediated by implicit and explicit concepts about words that change as new information is assimilated. Learning to spell entails revision of previous concepts about words. A student's level of spelling development is most accurately detected in his misspellings of words at his instructional level. If words are too difficult or unfamiliar, the typical features of a developmental level may not be evident because the writer may resort to regressed or random attempts.

Louisa Moats, project director of a longitudinal study of early reading instruction for the National Institute of Child Health and Human Development (NICHD) in Washington, D.C., has studied the spelling errors of children. Using theory and research that emphasizes the link between speech processing and writing, she suggests the following stages of spelling development:

I. Early Stages:

A. Precommunicative writing – Children may know the names of some letters and be able to recognize letter forms, but they do not know the alphabetic principle (that letters represent speech sounds). They may not know the concept of wordness (that print represents words and spaces represent the boundaries between them). They often think that phrases such as "over there" or "time to go to bed" or "thank you" are all one unit of expression. Writing may go from left to right but often goes up, down, and backwards. The writing usually contains letter-like and number-like forms, and the child can "read" the message shortly after writing it.

B. Semiphonetic stage – After the child has developed awareness of alphabet letter names, a shift occurs in which the child realizes that letters represent speech sounds. This insight results in abbreviated or economical spellings in which a few letters, usually consonants, are used selectively and rulefully to represent words and syllables. Generally there is an incomplete awareness of word boundaries. An example is RUDF (Are you deaf?) and HAPEBRTDA (Happy Birthday).

C. Phonetic spelling – As children gain more experience with print, and are encouraged to write, they learn consistently to represent all of the phonemes in words using strategies derived from their knowledge of letter names and some sound-letter correspondences. The child's phonetic analyses rely heavily on sound segmentation and articulatory-phonetic feedback, so this stage could be called "spelling by mouth." Vowels are represented by the letter most like the sound (DA for day, KAM for came, FEL for feel, LIK for like, BOT for boat). Back, rounded vowels are often represented with the lips rounded in /w/ position (SOWN for soon, POWLEOW for polio). Diphthongs may be represented as BOE for boy, HAUS for house, and PIYL for pile. Consonants are written as the child perceives the sound, so watch may be spelled WOH, church as HRH, and witch as WEH. At this stage most students spontaneously notice and mentally categorize redundant orthographic patterns in the words they are learning to read, but studies show they do so most quickly when orthographic sequences are pointed out to them through categorization, word search, and word analysis.

II. Transitional Spelling:

After children gain more experience with print, they realize that the speech-spelling correspondence system is governed by many constraints and that graphemes are most often groups of letters. They recognize that silent letters can occur in graphemes and that tense vowel (long vowels as in beet, boat, bait) spellings are most often composed of two or more vowel letters. They usually include a vowel in a syllable although

the vowel may be misplaced. They experiment with doubled letters and begin to internalize common syllable patterns. Spelling misunderstandings can be noted by the observant teacher so appropriate remediation can be provided. For example, night might be spelled NIT, NITE, or NHITE. The student spelling NITE is phonetically correct but needs guidance in understanding the *igh* spelling of /i/. NIT indicates immature spelling, and this child may not be ready to spell the word correctly. He may need more exposure to print before being ready to learn the spelling rules. NHITE is more likely to be used by an older child who has a spelling disability. He knows there is an h, but he doesn't know where to put it.

III. Morphonemic Spelling:

After learning the graphemes that represent consonant and vowel spellings within a syllable, children must then learn to recognize common ways in which meaning influences spelling in combination with sound-symbol correspondence. This is where prefixes and suffixes are learned as well as homophones. Direct instruction in the relationships of words can be helpful. For example, electricity is spelled with a c instead of s because the base word is electric (Moats, 1995).

Suzanne Carreker (1999), the creator of *Scientific Spelling*, a spelling program for dyslexic children, elaborates on the difference between good spellers and poor spellers. She points out that good and poor spellers do not differ greatly in their visual memory abilities. What differs is that good spellers possess well-developed phonological processing skills that not only make them aware of the sounds in words but also support the learning

of letter patterns in words. They possess an orthographic memory that is more specific than visual memory; it is specific to remembering letter patterns and words. Good spellers know not only how sounds are represented in language but also how words should look. They are able to deal with the ambiguities of the orthography (e.g., the multiple spellings of the long /a/) by weighing the variable spellings by their frequency or exposure in reading (e.g. *a-consonant-e* is more frequent or a stronger connection to long /a/ than *eigh* because the reader sees it more frequently). In addition to possessing phonological and orthographic knowledge, good spellers are able to simultaneously draw support from their awareness of syntax, morphology, and semantics. Poor spellers do not possess the ability to deal with several layers of language simultaneously. They may be able to sound out words and spell them phonetically, but they struggle to remember which spellings of the sounds they should use in particular words.

The Process of Writing

In the past twenty years, the focus of research has shifted from the products of writing to the process of writing (Scott, 1999). With the emergence of social constructivist views of young children (Vygotsky, 1978) and interest in the earliest stages of print literacy, researchers have been led to study the emergence of writing in naturalistic contexts, such as the home, preschool, and early elementary classes. The findings can be summarized as following:

1) Writing is a gateway to literacy.
2) All children can be writers.

3) Writing is a complex process with psychological, cultural, linguistic, and social influences.
4) Children write to say something important (Scott, 1999).

As a result of the changing views of writing, the writing activities in the elementary classroom have changed. Previously children were involved in activities designed to teach them the writing system – spelling, punctuation, and layout. They copied words and sentences from the board and practiced penmanship. The paradigm shift spurred by whole language, literature-based, and writing process approaches has resulted in classroom contexts designed to help children learn the written language – to write in the genres characteristic of schools and the community (Pontecorvo & Orsolini, 1996). To be a conventional writer, the student must have some understanding of: 1) sound-symbol relationships, 2) words as stable, "memorable" units, and 3) text as a stable, memorable object (Sulzby, 1996, p. 27).

Current ideas for assessing and facilitating writing have come from two sources: the philosophy of the writing process approach and cognitive information processing research (Westby & Clauser, 1999).

Writing in school is concerned with the composition process, how a student should proceed to write an essay, a report, or a story of some length. Another term for this type of writing is epistemic writing, the type that advances the writer's knowledge of the topic and is credible to the reader. Hayes and Flower (1987) asked writers to think aloud as they wrote in an effort to understand the process that mature, or expert, writers utilize. They developed a model to show the problem-solving

activity of writing, as well as the recursive stages involved. This model consists of three phases:

1) planning phase - writers select information from their knowledge base and organize that information for an effective presentation.
2) generation phase - writers choose the words and structures that encode the meanings they wish to convey.
3) revising phase - in an attempt to improve the text, writers make changes that range from changing a word, adding a comma, to reorganizing or adding/deleting major portions.

Revisions of younger writer and novice writers are more frequently devoted to the word or sentence level and are less apt to change the meaning, while expert writers make changes involving larger stretches of discourse and text meaning. Novice writers use a knowledge-telling model of writing, and expert writers use a knowledge-transforming model (Scott, 1999).

Prior to 1990 most research on the writing of children with reading disabilities focused on the product or written text. The total number of words or sentences, grammatical and punctuation errors, and spelling errors were studied, as well as overuse of the word "and" at the beginning of sentences and the number of prepositional phrases in the sentences (Scott, 1999). More recently studies have dealt with the process of writing in an effort to understand the difficulties encountered at each stage of writing (planning, generating, and revising). Children with learning disabilities exhibit difficulty generating ideas and content, translating the ideas into graphemes and sentence structures, organizing the ideas, monitoring their

performance, identifying errors, and knowing how to correct those errors. Many of these students require more extended, structured, and explicit instruction to develop the skills and strategies essential for writing (Scott, 1999).

Students with language processing difficulties may struggle to understand the syntax of sentences. Complex clausal constructions involving embeddings, gerunds, relative clauses, adverbial constructions, and complex subordination and coordination present challenges. Halliday and Hasan (1976) refer to these and to general issues of anaphora (reference) as cohesive devices that are "relations of meaning that exist within the text, and that define it as a text" (4). Markers of person (I, you, he, she, it), place (here, there) and time (now, then), demonstratives (this, that), and locatives (up, down, right, left) are first used symbolically (contextually) and then anaphorically (textually). For example, "Put it *there*" depends on knowledge of the situation and gestures. "Is John *there*?" asked of a person on the telephone can be interpreted purely linguistically and is different from "I parked my car in the lot and left my keys *there*," a textual reference. These represent three "contexts," the pragmatic real world situation, the context-free language use, and textual cohesion. Children with a language processing disability struggle to understand the meanings of referants, clauses, and words with multiple uses. Their written sentences will reflect this confusion.

Developmental Stages of Syntax

Children progress through developmental syntax stages as their language abilities increase. Westby and Clauser (1999) suggest the following hierarchy for syntactic structures:

1. Simple sentences (noun + verb + object); if connectors between sentences are used, they are primarily and, then; may use ambiguous pronouns.
2. Compound subjects; compound predicates; coordinating conjunctions, primarily and, then, but; subordinating conjunction because (used for motivation - He can't have it, because it's mine.)
3. Adverbial subordinate clauses, particularly with the conjunctions when, while, because (used for justification), relative clauses (He asked his friend who lives in Ohio.) Quotation (He said, "Draw a picture of your favorite cartoon character." or He told us to draw a picture of our favorite cartoon character.)
4. Use of low-frequency adverbials (though, although, even if, as, unless, provided that), nominal clauses as subjects (Birds that fly south in winter cannot stand cold weather.)
5. Use of concordant conjuncts (similarly, moreover, consequently, therefore, furthermore, for example), and discordant conjuncts (instead, yet, however, nevertheless, conversely), use of structures to achieve literary style, for example absolute phrases, participle phrases, and subject-verb splits (275).

Effective written expression is dependent upon several factors. First, the author must have a sense of audience and how to communicate with the reader. The writer must know the content, or have knowledge of the topic. An understanding of the structure of narrative, expository, and persuasive writing is essential to producing each type of material. Finally, the writer must master the mechanics

of spelling, syntax, and other writing mechanics such as grammar and punctuation. The dyslexic student requires explicit instruction in each of these areas in order to be successful with written expression.

Summary

Dyslexia is a language processing disorder which causes difficulty with reading, writing, and spelling. Although it is a medical term there are educational implications which must be addressed in the schools. The difficulties in processing language prevent children who are average to above average in intelligence from interacting appropriately with written language. Although some children appear to learn to read, write, and spell with ease, these children require more intensive instruction involving multisensory strategies. The structure of the word (spelling), the structure of the sentence (syntax), and the structure of narrative, expository, and persuasive writings must be directly and systematically taught to enable these students to enjoy academic success.

Chapter 3

Methodology

Introduction

Because of an interest in gaining insight into the written expression of dyslexic students and the effect of multisensory instruction on their writing progress, a mixed methods research design was selected for this study. An ethnographic multiple case study allows a person to compare and contrast the quality of writing of fourth grade students at three elementary schools as they prepare for a high stakes test that includes a writing component. The long-term immersion of the ethnographic model provides opportunities to gather comprehensive, systematic, and in-depth information about the written language progress of students.

Ethnography refers to a method of research that emphasizes:

a) exploring the nature of particular social phenomena,
b) working with "unstructured" data,
c) investigating a small number of cases in detail,
d) analyzing data by interpretation of the meanings and functions of human interactions, and
e) creating a product that takes the form of rich descriptions and explanations (Atkinson & Hammersby, 1994).

Focusing on multiple cases provides more insight into the progress of written expression of dyslexic students in a pullout program at several elementary schools. Although the instruction in the pullout setting was consistent, the setting of the remedial instruction, the size of the

remedial group, and the classrooms to which the students returned varied.

The individual case study has emerged in education as one of the primary models for ethnographic or naturalistic inquiry (Guba, 1988). This approach has been useful in helping educational researchers understand the rationale behind numerous instructional issues. By providing a portrait of individual students, case studies can provide a contextual view of the subtleties that influence behavior, helping to better understand the complexity of written expression. Lincoln and Guba (1985) outline the advantages of case studies. These advantages include the following:

a. The case study is the principal vehicle for emic inquiry; i.e., research is carried out with an inside perspective;
b. the case study provides the reader with an opportunity to scrutinize for internal consistency and trustworthiness;
c. the case study demonstrates the interplay between the researcher and the participants;
d. the case study provides "thick description" and thus helps a reader make judgments of transferability; and
e. the case study communicates information about context that is grounded in the particular setting being studied.

Case studies are a dominant approach of the qualitative researcher. This study employed the multiple case design (Lincoln & Guba, 1985) which allows for comparing and contrasting participants in order to better understand each subject in depth. By studying multiple cases, the

complexities of written expression in dyslexic students can be scrutinized in an attempt to understand more effective methods of teaching them.

Research Design

Researchers using sequential qualitative and quantitative approaches regard reality as multifaceted and open to interpretation. They believe that scientific knowledge consists of various interpretations of human learning and behavior, limited by unique perspectives, but contributing to some holistic and emerging understanding. The setting is naturalistic, and data are interpretive and analyzed inductively as themes and patterns emerge. The researcher is concerned with the trustworthiness of the findings. Meaning is the primary concern, and qualitative researchers are interested in process rather than simply outcomes or products (Bogdan & Biklen, 1992).

This mixed design study was built around three methods of data collection: writing samples, observations, and test scores. Because one characteristic of naturalistic inquiry is that of emergent design, the procedures described are flexible (Lincoln & Guba, 1985).

Selection of Participants

Davis School District was selected to be the site of this study because of its large pool of identified students, its diverse population, and its variety of demographic settings. The locations of the 45 elementary schools are comprised of urban, suburban, and rural communities. These students represent a variety of ethnic backgrounds and socio-economic status. Fourth grade students were targeted for this study because they must

write a composition on the LEAP test given in March. If they score below the approaching basic level in either Math or English Language Arts, they must repeat fourth grade.

Title I schools were eliminated from the pool of schools for three reasons:

1) Those schools are using Direct Instruction for their reading program, and a remedial pullout program is not allowed during the reading/language arts block of time.
2) Since many students in Title I schools have reading difficulties, identification of dyslexic students is often not a priority. Many other factors may be involved in the reading difficulty, such as environmental deprivation, high mobility, and low parental participation. While these students may benefit from instruction in a multisensory structured language program, identification of characteristics of dyslexia may be difficult.
3) Mobility of students in Title I schools is high, making it difficult to provide consistent instruction in one setting.

Each student who is qualified to receive services as a dyslexic student has undergone an identification process handled by the School Building Level Committee (SBLC) at the local school. This process requires the SBLC to consider information from a variety of sources. Some of that information may have come from an outside evaluation or an assessment provided by the Dyslexia Department in the district. In all situations, the SBLC is to follow the guidelines set forth by Louisiana Law for the Education of the Dyslexic Student (Bulletin 1903, 2000). (Those guidelines were listed in Chapter 1.)

The individual schools have several methods of providing appropriate instruction for their dyslexic students. Some classroom teachers have been trained in *Project Read*, a multisensory structured language (MSL) program, by turnkey trainers in the school district and are solely responsible for the multisensory language instruction within their classrooms. Principals at all of the schools have the option of requesting the services of a trained itinerant teacher. That service is provided by an itinerant teacher using *Project Read* in a remedial pullout setting in two forty-minute sessions each week; the classroom teacher is to provide the remaining 70 minutes of appropriate instruction.

Although attempts are made to provide this remediation during the language arts block of time, the school schedules sometimes prevent the optimal situation. Care is taken not to pull children from enrichments that highlight their special abilities. For example, the child who is artistic should not be removed from art. Pulling children during recess time is also avoided whenever possible because many children with learning differences need the mental break afforded by recess. Written parental permission must be obtained in this school district before a child can participate in a pullout program. Using critical case sampling (Patton, 1990), fourth grade students at three schools where children receive MSL instruction from a trained itinerant teacher in a pullout setting were chosen.

A total of twelve fourth graders were served in the remedial program at the three selected schools at the beginning of the 2001-2002 school year. Letters requesting

permission to include these students in this study were sent to the parents in August. One parent refused permission. The remaining eleven students were pre-tested with the Gray Oral Reading Test-4 (GORT-4) and the Test of Written Language-3 (TOWL-3). During the course of the remedial instruction, one child moved out of the district, one was dismissed from the program by the school personnel, one was temporarily removed from the program because he was missing vital instruction in math during the remedial sessions, and one missed more than 25 percent of the lessons. Of the remaining seven students, two were from each of two schools, and three were from the third school. To maintain balance in the study, two of the three students from the third school were randomly selected, resulting in a study of six students.

The fourth grade students in this study received remedial instruction in *Project Read* Written Expression twice weekly in forty-minute sessions. This instruction taught the concepts of the structure of a sentence. The students began with a "bare bones" sentence containing only two words, the subject and the predicate (for example, Dogs bark.). Each session previously taught concepts were reviewed before the next skill was introduced. The students learned symbols for the subject, predicate, predicate expanders, subject describers, and bound predicates so they could diagram sentences. After the function of the different parts of the sentence was taught, the words commonly used in the classroom were used to label the parts of speech. As more complex sentences were introduced the students were guided in finding the foundation of each sentence, the subject and the action of that subject, to enhance their understanding of the content.

Data Collection

Table 3.1 is a graphic representation of the research timeline and procedures for data collection and analysis.

Table 3.1

Data Collection and Analysis

Timeline and Procedures

	Duration	Emphasis	Techniques
Phase 1 Selection of students	2 weeks August, 2001	Select students. Administer pre tests.	Writing samples. Reading test. Writing test.
Phase 2 Focused research	4 months October, 2001 - January, 2002 Student contact twice weekly for 40 minute periods. Classroom observations.	Instruction in MSL program with emphasis on written expression. Begin gathering data on writing performance. Develop tentative coding categories.	Participant observation in pullout program and in classroom. Collection of artifacts. Informal interviews. Constant comparative method.
Phase 3 Focused research Field exit	2 months January – February, 2002	Administer posttests. Continue data analysis. Confirm emerging themes in field. Write dissertation.	Reading test. Writing samples. Writing test. Collect and review field notes. Constant comparative method. Triangulation. External audit.

Prior to the beginning of the study, permission was obtained from the Superintendent (Appendix A), the Supervisor of the Department of Special Services (Appendix B), and the Supervisor of the Dyslexia Department in Davis School District (Appendix C). After the students for the study were identified, permission was obtained from the principals of the schools involved (Appendix D) and from the parents of the individual students (Appendix E).

A snapshot academic picture of each child was obtained by looking at grades and attendance from the beginning of his public education, mobility from school to school, and standardized test scores. In Davis School District the Iowa Tests of Basic Skills (ITBS) is given to all second, third, and fifth grade students, and the state designed LEAP test is given to all fourth grade students. Children who fail the LEAP in the spring are required to attend summer school and given the opportunity to take it again in the summer. Those failing in July must repeat fourth grade.

Pre/Post Testing

After the students were selected, their baseline performance was assessed. To determine their reading ability, the Gray Oral Reading Test-4 (GORT-4) was used. This test addresses accuracy, rate, and comprehension. Accuracy is determined by the number of words read incorrectly, omitted, or inserted. Self-corrections are counted as errors. Rate is the number of seconds the student takes to read the passage. Accuracy and rate are used to determine fluency. The ceiling for accuracy, rate, and fluency is treated independently of the ceiling for comprehension. Therefore, a child can continue to read passages for credit in comprehension after he has reached the ceiling in fluency. The oral reading of dyslexic

students is often characterized as dysfluent. Their reading is generally slower than that of their peers, and they struggle to read words correctly. Therefore it is important to consider the fluency and comprehension separately.

Written language was assessed using the Test of Written Language Development-3 (TOWL-3). This test gives six scores:

1) vocabulary, in which the child must read words and use them correctly in a sentence;
2) spelling, which is assessed in the dictated sentences of the style subtest;
3) style, which measures the correct use of capital letters and punctuation in dictated sentences;
4) logical sentences, which consists of sentences that contain a word or words that make them illogical; the student must cross out and/or add words to make the sentence logical;
5) sentence combining, which has two or three sentences that must be combined into one; and
6) spontaneous writing, in which the student is given a picture and asked to write a story.

All subtests must be read independently by the student.

The GORT-4 and TOWL-3 were repeated in February to determine progress in reading and written language. Form A on both tests was used for the pre-test, and Form B was used for the post-test. The scores of each subtest for the pre- and post-tests are reported for each child. These scores are reported as age equivalents (A.E.), grade equivalents (G.E), and percentiles (%tile). Writing samples were collected weekly throughout the study.

Observations

In order to more clearly understand the language struggles and progress in written expression, the researcher observed the performance in reading and writing of the students in their regular classrooms as well as in the pullout setting. Participant observation is a particular mode of observation in which the observer assumes a variety of roles within a case study situation and may participate in some of the events being studied (Yin, 1994). The participant observer analyzes her observations to determine meanings and to search for evidence of personal biases.

Spradley (1980) identifies three types of observations used in qualitative research: descriptive, focused, and selective. Descriptive observations portray everything that happens in the setting, and they are used in the beginning stages of the inquiry. These observations are unfocused, general in scope, and based on broad questions. Focused observations come next in the observational process, directing the researcher's attention to a deeper and narrower portion of the research content. This period of observation generates clearer questions, and the researcher begins to form themes and categories. These new questions and categories then require selective observations. At this point, the researcher focuses on refining the characteristics of and relationships among the objects of study. As this research project proceeded, Spradley's three types of observations were used to focus attention more closely on evidence of language improvement in the written expression of dyslexic students.

Field Notes

Field notes are the primary recording tools of the qualitative researcher. They are the written account of what the researcher sees, hears, experiences, and thinks in the process of collecting and reflecting on data collected (Bogdan & Biklen, 1992). Field notes were a vital part of data collection procedures in this study. In addition to the inclusion of descriptions of the behaviors observed in the pullout setting and in the classrooms of the students, field notes contained reflective impressions as the research progressed. These three categories of observer reflections were utilized: comments, questions, and hypotheses (Lincoln & Guba, 1985). A field notes protocol (Appendix E) guided observations for this study.

Other Data Collection Sources

Additional sources of data were used throughout the research. Key informants provided insights, through informal interviews, about the research topic. Those informants included teachers, parents, paraprofessionals, and administrative staff. A teacher questionnaire (Appendix I) and parent questionnaire (Appendix J) were used to provide additional information. Student work samples were collected. In addition, children were asked to think aloud as they wrote, to discuss the process and/or clarify their intentions and purposes. Pre- and post-test scores from writing and reading tests were reviewed, as well other pertinent test information and writing samples from the classroom.

Ethics

Every effort was made in this research to address ethical issues such as individual rights to dignity, privacy, confidentiality, and avoidance of harm (Yin, 1980). All individuals in this study participated on a voluntary basis, through the consent of their parent or guardian (American Educational Research Association [AERA], 1992). The identities of all participants were kept confidential throughout all field notes and reports (AERA, 1992).

Data Analysis

In qualitative research, data are analyzed inductively. The researcher begins with specific, raw units of information that are then classified or incorporated into a more comprehensive category or under a general principle (Lincoln & Guba, 1985). Analysis occurs both during and after data collection. A central feature of qualitative analysis is the constant comparative approach (Glaser & Strauss, 1967).

Constant Comparitive Analysis

The steps in the constant comparative method described by Glaser (Glaser & Strauss, 1967) were utilized:

a) begin data collection;
b) search for important issues, recurring events, or activities in the data to develop categories of focus;
c) collect further data which provide examples of the categories of focus, looking to see the diversity of each category;

d) write about the categories by describing and accounting for all the incidents within the data while constantly searching for new incidents;
e) work with the data and emerging themes to discover basic processes and relationships; and
f) sample, code, and write as the analysis focuses on the core categories. The data collected from work samples, observations, and informal interviews was analyzed using this method.

Trustworthiness

Though qualitative researchers do not use the same methods for establishing validity and reliability of their data collection methods and conclusions as do quantitative researchers, these elements are no less important in qualitative research. Qualitative researchers use the terms credibility, transferability, dependability, and confirmability to establish the trustworthiness of the findings (Lincoln & Guba, 1985). To persuade readers that the findings are legitimate and trustworthy, several procedures were followed.

Credibility

To make it more likely that the findings and interpretations will be credible, the techniques of prolonged engagement, persistent observation, triangulation, and member checking (Lincoln & Guba, 1985) were used. By prolonged engagement a researcher can build trust among the participants, establish emerging themes, and determine irrelevancies and distortions. As a precaution to ensure credibility, triangulation was built

into the study. By collecting and confirming data through multiple sources (triangulation of sources), data can be verified and emerging themes and patterns better established.

The classroom teachers of the students served as the member checks (Lincoln & Guba, 1985). They were consulted regularly to discuss the progress of the students' written language, as well as reading performance, within the classroom setting.

Transferability

The thick description present in a qualitative report enables someone interested in generalizing the information from the context of the study to reach a conclusion about whether transfer is possible to another context. Lincoln and Guba (1985) maintain that the degree of transferability depends upon the degree of similarity between the sending and receiving contexts. Since the original researcher cannot know the contexts to which transferability might be sought, it is the responsibility of the researcher only to provide sufficient descriptive data to make similarity judgments possible.

Dependability and Confirmability

Lincoln and Guba (1985) suggest the use of an external auditor to provide dependability and confirmability. Qualitative researchers use an auditor to examine the data after field notes are analyzed to carefully verify both the process and the product of the research. The researcher leaves a paper trail consisting of raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, materials related to intentions and dispositions, and instrument development information.

The auditor discerns whether the research findings are grounded in the data, judges whether the inferences are logical, and checks for bias. The use of an external auditor at the end of this study provided dependability and confirmability.

Chapter 4

Results and Discussion

The Setting

Louisiana has a law, the Louisiana Law for the Education of the Dyslexic Student, which is implemented through Bulletin 1903 (2000). Although dyslexia is a medical condition in which the brain processes information differently, this bulletin requires that schools identify children who have characteristics of dyslexia when those characteristics are affecting the child's academic performance. In addition, part of Bulletin 1903 (2000) requires that every student in kindergarten through third grade be screened at least once for characteristics of dyslexia (as well as characteristics of Attention Deficit Disorders and other at-risk factors).

Davis School District uses the state-mandated Developmental Reading Assessment (DRA) as the first screening for dyslexia. All children who score below grade level on the DRA in October of second grade should be referred to the SBLC. A checklist is used to determine if the child should be considered for a dyslexia assessment. The school can then request that a teacher/assessor from the Dyslexia Department test the child. Using a variety of standardized and informal measures, the teacher/assessor gathers diagnostic information. Current performance in reading, written language, and math is tested using the Wechsler Individual Achievement Test (WIAT) or the Woodcock-Johnson Tests of Achievement (WJ III). Spelling performance, handwriting, phoneme awareness, sight word and

decoding performance, and oral reading fluency are assessed as well. A report containing scores and information gathered during the assessment process, as well as recommendations for accommodations in the classroom, is given to the School Building Level Committee (SBLC). School level personnel, including the child's teachers and parents, then make the decision as to whether the child meets the qualifications outlined in Bulletin 1903 (2000). The child must have adequate intelligence to perform on grade level and then meet five of the six characteristics listed in the bulletin. (See Appendix M.) This process can be initiated by the school personnel or by the parent. Parents may provide a private evaluation for consideration instead of using the assessment from the school district. An outside evaluation, however, does not guarantee identification for services as a dyslexic student. If a parent is not satisfied with the decision of the SBLC in the educational services provided for his or her child, he or she has the right to file a grievance. That procedure has prompted some schools to take a closer look at providing help when students struggle to learn to read, write, and spell appropriately.

In Louisiana, students who have been identified as having the characteristics of dyslexia must be served in the regular education program. They may qualify for the services of the speech/language pathologist and therefore have an Individual Educational Plan (IEP). In Davis School District, identified children who are not receiving the services of a speech/language pathologist must have a Section 504 Individual Accommodation Plan (IAP).

Davis School District has thirty-nine elementary schools and six elementary/middle schools in a variety of settings. Enrollment for the elementary schools ranges from 204 to 870 students. Elementary/middle school enrollment ranges from 780 to 1,546 students. Those in urban areas are Title I schools (schools containing a high percentage of children receiving free or reduced-price lunches). Although students in these schools may exhibit characteristics of dyslexia, their SBLC's seldom refer them for a dyslexia assessment. There are many contributing factors to their reading difficulties that are addressed in other ways. Nineteen of the Title I schools use Direct Instruction for their reading program. Since that is a scripted program, the classroom teachers are unable to use *Project Read* strategies. For this reason Title I schools were not considered in the pool of eligible schools for this study.

The remaining schools in Davis School District range from small community or rural schools to large suburban schools. The understanding of dyslexia varies from school to school, and the number of referrals for assessment is dependent on the importance the SBLC places on identification of characteristics of dyslexia. Parents in some schools are more knowledgeable about dyslexia, and some have taken their children for private evaluations.

Although training has been offered in *Project Read* Phonology/Linguistics, Story Form, Report Form, and Written Expression, as well as in *Scientific Spelling* and Multisensory Grammar, during the summer and on staff development days for the past four years, teacher participation has always been voluntary. The teacher's freedom to use the multisensory structured language

strategies is dependent upon the local administrator's perception of student need.

In an effort to provide more consistency of appropriate instruction for identified dyslexic students, last school year the district's Dyslexia Department implemented a grant to train five teachers at each of five schools (a total of twenty-five teachers). One teacher per grade was selected to receive training in *Project Read* Phonology/Linguistics, Story Form, Report Form, and *Multisensory Grammar*. The principals at these schools were encouraged to place the identified students in the classrooms of trained teachers. The grant was renewed this school year and an additional five schools were selected to receive the training. Materials were provided for the teachers and the identified students through this grant. Stipends were paid to the teachers who participated in the eighteen hours of training.

Three elementary schools in Davis School District were selected using critical case sampling. One school is in a suburban area, one is in a small community, and one is in a rural setting. Two of the schools participated in the grant to train teachers last year; the other school is participating this school year. The names of the schools and the students have been changed to provide anonymity.

Lee Elementary School

Lee Elementary School is a school with kindergarten through fifth grade. Total enrollment is 505, with 98 (19%) of those students receiving special education services. Fifteen regular education students have been identified as having characteristics of dyslexia. Thirty-one percent of the teachers have a Master’s Degree or higher.

Although a few of the teachers had voluntarily taken *Project Read* training prior to 2001, the school was involved in a grant to provide *Project Read* training in the fall of 2001. This grant was written and implemented by the Dyslexia Department in Davis School District to enable classroom teachers to be more effective teaching children with language processing difficulties. In April, 2001 when participation in the grant was offered to the school, the principal was asked to choose five teachers (one in each grade from first through fifth) to receive the training and to place all identified dyslexic students in those classrooms for the 2001 - 2002 school year. When the training began in September, one first grade, one second grade, two fourth grade, and one fifth grade teacher were sent. One of the fourth grade teachers was pregnant and was scheduled to begin maternity leave in February.

Three of the five fourth grade dyslexic students were in the classrooms of the two teachers being trained. The fourth grade teachers teach in self-contained settings. This school began using the Open Court reading program at the beginning of this school year. Previously Harcourt Brace had been used. Lee Elementary School is located in a suburban neighborhood, but children from other neighborhoods are bussed in.

Two factors impacted remedial instruction at this site: group size and instruction time. The dyslexic third and fourth graders composed one group of nine children. Remedial instruction is most effective when the groups contain no more than six students. Several children in this group had attention deficits in addition to the language processing difficulties, and the group size was not in

their best interest. Because the instruction was at the very beginning of the day, the arrival of the children took place over a period of fifteen minutes.

These were pulled Mondays and Wednesdays 8:00 until 8:45, a time that was chosen by the administration at the school at the beginning of the school year. The school day began at 8:00, and the students had to go to their classrooms to let the teacher know they were present before coming to the remedial instruction. A total of six classrooms were involved, three third grade and three fourth grade rooms. The teachers had different procedures for checking in students before sending them for remedial instruction. Some of the children were brought to school by their parents, and some were chronically late. The location of the remedial instruction changed from time to time, depending on how the speech pathologists chose to divide their groups. There was a room designated for the reading teacher who came two days a week to work with second and third grade students. Remedial instruction for dyslexic students was scheduled for days that this teacher was at another school, but the speech pathologists had priority in the use of this space. The room most often used was only free until 8:45; even though the students were frequently late coming for the instruction, the lesson had to end at 8:40. Instruction generally lasted for twenty-five minutes instead of the forty listed on paper.

Wade Elementary School

Wade is an elementary/middle school with kindergarten through eighth grade. Prior to the 2001-2002 school year the middle school grades (six through eight) were a magnet school with enrollment requirements, while the elementary grades accepted all children. Last year this school adopted

the magnet enrollment requirements for all students, but those who were already enrolled can remain as long as they maintain passing grades. Total enrollment of the school is 975, with 53 (5%) of those students receiving special education services. Eight elementary children have been identified as having characteristics of dyslexia. Forty-two percent of the teachers have a Master's Degree or higher.

Wade Elementary/Middle School was involved in a grant to train five teachers, one in each grade one through five, in *Project Read* during the 2000-2001 school year. Departmentalization begins in the second grade, and students have different teachers for language arts, science, social studies, and math. The principal often assigns teachers to different grade levels and different subjects each year, so that a fourth grade language arts teacher this year may have taught third grade math last year and vice versa. However, the dyslexic students are generally assigned to teachers who have had training in *Project Read*. The language arts teacher for the dyslexic fourth grade students was trained in *Project Read* as a part of the grant last year. Beginning this school year, Wade Elementary School changed from Harcourt Brace to Open Court for its reading series. This school is located in a rural farm area near several small towns. All of the students ride a bus or are brought to school by their parents.

The parents of one of the fourth grade students requested that he not be pulled out of regular classroom instruction for remediation because he was receiving tutorial help after school. The remaining three fourth grade students came from the same classroom. Occasionally

the language arts teacher would send a worksheet which the students had found difficult. She often sought advice and information to assist them in their classroom performance.

Remedial instruction at Wade was provided Mondays and Wednesdays 10:00 until 10:40. The students looked forward to this instruction and came to the room at 10:00 each time. The distance between Lee and Wade required thirty minutes travel time, and the second group at Lee ended at 9:25. If farm equipment impeded traffic or there was a delay in the arrival of the itinerant teacher at Wade, the students got their folders and began working on their sentences until the teacher arrived. The remedial instruction was consistently held in the same classroom. Although the room was shared with the speech pathologist, there was a table and chalkboard which were set aside for remedial instruction.

Hicks Elementary School

Hicks Elementary School is a school with kindergarten through fifth grade. Total enrollment is 427, with 42 (10%) of those students receiving special education services. Forty-seven percent of the teachers have a Master's Degree or higher. The principal tends to hire young female teachers, and every year two or three take maternity leave for a portion of the year.

At the beginning of this school year there were fifteen students identified as having characteristics of dyslexia. Five of these students were in the fourth grade. The SBLC determined that one of the students no longer qualified for services and one child moved to another state. At the request of the principal, remedial instruction was offered during math, science, or social studies. Because the students were in these classes one

hour each day, the principal reduced the remedial instruction to 30 minutes so they would only miss half of the classroom instruction. One of the students had poor grades in math, the class from which he was being pulled, and the teacher requested that he be allowed to remain in the classroom until after the LEAP test. The remaining two dyslexic students participated in this study.

Hicks Elementary School was involved in the grant to train five teachers, one in each grade first through fifth, last school year. One of the five teachers left the school at the end of the year, and the fourth grade teacher has been on maternity leave since November, 2001. Classes are departmentalized in fourth and fifth grade. Each teacher has a language arts class in the morning and then spends the rest of the day teaching one subject.

One fourth grade teacher at Hicks Elementary School voluntarily took all components of the *Project Read* training three years ago. She is particularly sensitive to the needs of dyslexic students and has implemented as many of the *Project Read* strategies as she can within the framework of her principal's expectations. After the language arts period, she is the science teacher. Of the five fourth grade dyslexic students at the beginning of the year, only one was assigned to her language arts class. Two of the students were assigned to a language arts teacher who has had no training in a multisensory structured language program. This school uses the Harcourt reading program. Hicks Elementary School is located in a small rural community.

The remedial instruction was provided Mondays and Wednesdays 1:05 until 1:35. One of the teachers openly voiced her objections to the students being pulled out of

her class, stating that they would have to stay in at recess the next day to make up work missed during the thirty minutes they were gone. The location of the instruction was changed by the principal several times. Frequently the room had to be rearranged upon the arrival of the itinerant teacher so the students would have an appropriate workspace.

Tension over test scores and grades was evident as teachers at Hicks Elementary discussed students with the counselor or talked among themselves in the lounge. One teacher reported that they were "raked over the coals" by the principal for having so many students with D's and F's on the mid-nine week progress reports. Many classrooms have students who must remain in at recess to complete work each day. A teacher complained that students appear to be fine during the afternoon recess, but when they must come in and work they feign illness and ask to go home. Evidently students are not beginning assignments as quickly as the teachers would like in one grade, and they have begun setting timers when an assignment is made. When the timer rings the work must be turned in. All uncompleted questions are counted wrong.

Although five teachers were trained in multisensory strategies last year, many continue to rely heavily on worksheets. Classrooms are generally quiet and orderly. Students at Hicks Elementary come from homes where children are taught to say "yes ma’am" and "no ma’am." Parent involvement in school activities is high. Some parents are beginning to learn about dyslexia and are becoming more insistent about appropriate accommodations in the classroom.

One of the difficulties encountered in a pullout program delivered by an itinerant teacher is that students may not be available for every session. When field trips or assemblies interfere with the scheduled time, the students simply have to miss that remedial instruction. In addition, time was wasted in two of the three schools in finding and setting up a new room, when the room previously used was unavailable.

Sources of Data

Two major sources of information are increasingly used in the school system to assess a child's overall progress: grades and standardized test information. As the public demands more accountability from public education, test scores and grades provide measures that can be compared from one setting to another. While these two measures fail to provide an accurate picture of a child's total ability, they do reflect academic success.

Attendance and mobility are considered when a child is referred to SBLC because of academic difficulties. If a child has failed to learn but has moved to different schools within the school year, the lack of success may be due to fragmented instruction. If the child has excessive absences, it is possible the failure to learn is due to lack of instruction rather than a learning disability. Excessive absences may also indicate an illness that prevents the child from devoting necessary energy to acquiring academic skills. Although students who move frequently can qualify for services as a dyslexic student, it may be hard to determine whether their academic difficulties are related to a difficulty with processing language. It is also likely that those students will move

from one school to another during the current school year. Therefore, students who have moved more than once between kindergarten and fourth grade were not considered for this study.

To obtain an academic background, grades and attendance dating from the child's entrance into public school were collected. Davis School District has four nine-week grading periods. The grades and attendance history is listed with each student. Classroom grades may be determined through a variety of sources, including quizzes, chapter tests, and portfolio assessment, over the course of the school year. Students may have the opportunity to compensate for poor grades by doing special projects for extra credit. Some teachers may be lenient in their grading procedures, allowing students opportunities to bring up low grades. On the other hand, standardized test scores reflect the child's performance during one week in a strictly controlled setting. Considering both classroom grades and standardized test scores affords a more complete picture of academic success. Therefore, the reading total, language total, and math total scores (given in percentiles) from the Iowa Tests of Basic Skills (ITBS) are listed with each student.

Two standardized tests were used to measure progress during this study. The Gray Oral Reading Test-4 (GORT-4) is an individually administered test to determine reading progress in fluency and comprehension. The subtest rate reflects the number of seconds the student took to read the passage. Accuracy is the number of words misread, omitted, or added during the oral reading. Self-corrections are counted as errors, but repetitions are not considered. Rate and accuracy are combined to determine reading fluency.

After the child reads the passage aloud, he or she is given five questions with multiple-choice answers to determine comprehension. These questions are read to the student as he looks at them. Fluency and comprehension ceilings are figured independently. Therefore it is possible for a child to continue to read and gain comprehension points even after fluency scores are zero.

The other standardized test, the Test of Written Language-3 (TOWL-3), can be administered in a small group setting. Vocabulary is assessed as the child reads words and writes them in sentences. Spelling and style (capitalization and punctuation) are obtained through dictated sentences. The logical sentences subtest contains sentences that are illogical (I see many stars in the sky during the day.). The student must read the sentence and change it to be logical (I see many stars in the sky during the night, or I see many clouds in the sky during the day, or I see the sun in the sky during the day). Sentence combining contains a series of two or three sentences that must be combined. Spontaneous writing is assessed by having the student write a story about a picture. The picture on Form A contains a scene with cave men and wooly mammoths; Form B has a more futuristic picture of a scene in space. The children seemed to relate better to the cave men picture than to the space picture. None of the subtests can be read aloud to the students.

Both the GORT-4 and TOWL-3 scores are calculated according to the student's age rather than the student's grade. Standardization by age may be unfair to students who have been retained since they have not been exposed to the same instruction as that of their same-age peers. The scores are reported in age equivalents (A.E.), grade

equivalents (G.E.), and percentiles. Age and grade equivalents allow a quick, though sometimes misleading, look at how the child is performing in relation to his age or grade level. Percentiles allow comparisons with other standardized measures.

Remedial Instruction

Project Read Written Expression was used as the foundation for the remedial instruction provided in two forty-minute pullout sessions each week. Twenty-six sessions were provided. The students involved in the study were in groups of three to nine, depending on the number of children being served in that school. In one school the fourth grade students were in a group with third graders due to scheduling difficulties. In two schools the students were pulled from their language arts class; in the third school the principal scheduled the remedial instruction during math, science, and social studies. A sample lesson is included in Appendix G.

Each student was provided a folder containing lined paper, *Scientific Spelling* paper, a phoneme-grapheme chart (*Project Read*), and the necessary worksheets for the current unit of study. At the request of some students, important information on the structure of the sentence was added to the folders for future use. For example, when Concept 2 (predicate expanders) was introduced, the students wanted a list of the clue words to help them identify the four expanders. "Where" expanders generally begin with a position word, or a preposition. "When" expanders generally begin with when, since, before, after, as, during, or while. "Why" expanders usually begin with because, so, to, or for. "How" expanders may be words that

end in -ly or phrases that begin with the words like, with, or without. The students were told that they would take these folders home at the end of the school year. As each unit of study was completed the students requested that they be allowed to take that packet home to share with their parents.

Project Read Written Expression presents the structure of the sentence in the framework of concepts. In order for a child to understand how to write a good sentence, he must understand the function of the different words. The first concept is a "bare bones" sentence in which the child learns that every sentence must have two words, a subject and a predicate. Activities are provided to help the child to identify the naming word (subject) and the action word (predicate). The term "subject" is defined as the "person, place, thing, or idea that the whole sentence is about." The term predicate is defined as "the action of the subject." It is important for the child to understand that the foundation of every sentence is a good "bare bones" sentence. Symbols are assigned to different parts of the sentence so the student can diagram them. A formula for a sentence, the subject + the action of the subject = a complete thought, is introduced to assist the child in reading and writing. When the student reads a difficult sentence in a passage, he is encouraged to first find the "bare bones" sentence so he can determine the relationship of the other words.

At the beginning of each lesson, the students wrote a sentence of their choice in their folders using the concepts previously taught. At first they were only allowed to write a "bare bones" sentence, such as “Boys talk.” or “Birds fly.” As more skills were introduced, the sentences

became longer. For example, as predicate expanders were introduced the sentences could be expanded to tell where, how, why, or when the action took place. After "where expanders" were added, the student could write "Birds fly across the sky." After "how expanders" were added, the sentence could be "Birds fly swiftly across the sky." Clue words were given to assist the students in identifying whether the expander told where, how, when, or why the action of the subject took place.

Every lesson included writing a sentence, reviewing concepts, and practice identifying the parts of sentences. During each lesson the first several sentences were diagrammed with the assistance of the itinerant teacher before the students were asked to diagram others on their own. An explanation of the concepts and symbols is included in Appendix H.

Children volunteered to read the sentences aloud. Within any lesson every child volunteered and was allowed to read a sentence aloud at least once. Although oral reading of these students is often dysfluent, in this small group setting no child appeared uncomfortable in volunteering to read. Teachers often reported that these students rarely volunteered to read orally in class. Three factors may contribute to this difference:

1) The pace was slower in the small group setting than in the classroom.
2) The amount of reading was less (one sentence compared to a whole paragraph).
3) At the beginning of the school year dyslexia was openly discussed to answer questions the students

have about the term and to encourage them to realize that they are indeed intelligent.

As children displayed misunderstandings of phonics rules (such as, "a single vowel followed by a consonant is short") in their oral reading of the sentences, the opportunity was taken to review the rule. When orthographic misunderstandings were exhibited in their spelling, rules (such as the use of tch) were reviewed and the words recorded in the *Scientific Spelling* pages. Such instruction was frequently not planned but was in response to the needs of the students in that lesson.

The Students

Although dyslexia occurs in both males and females of all races, the pool of fourth grade students who had been identified as having characteristics of dyslexia at Lee Elementary School, Wade Elementary/Middle School, and Hicks Elementary School was predominantly male. Fourth grade students were selected for this study because they must write a passage on the high stakes LEAP test. Of the ten fourth grade students attending the remedial pullout program at the end of this study, one was a Caucasian female, three were African-American males, and six were Caucasian males. The dyslexic student who did not attend the remedial pullout program was a Caucasian male. The female student's parents did not give permission for her to participate in this study. Although she received the same remedial instruction as those who were in the study, she was not pre- or post-tested. Students who missed more than twenty-five percent of the remedial lessons were not considered for the study. Seven students remained in the study, two from Lee Elementary School, two from Wade

Elementary School, and three from Hicks Elementary/Middle School. To maintain balance among the schools, two of the three students at Hicks Elementary/Middle School were randomly selected for a total of six students.

At Lee Elementary students were not always at school when the bell rang at 8:00. Therefore the amount of time for remedial instruction varied for them. There were nine third and fourth graders coming from six classrooms in this group. If a child was late to school or forgot about the remedial instruction, the teachers frequently did not send him or her. They were involved in the activities necessary to start the day and felt that attendance to this program was the responsibility of the student. One child consistently came at 8:20 even though he was at school at 8:00. Because lack of remedial instruction could be an important factor in a child's progress, those who attended sporadically were not chosen for this study. Although twenty-six sessions were provided, each school had at least one field trip or assembly that affected one or more sessions. Of the ten fourth grade students receiving remedial instruction in these three schools, one student missed only one day.

An itinerant teacher provided remedial instruction in *Project Read* Written Expression for identified dyslexic students in Lee, Wade, and Hicks elementary schools. After obtaining permission to conduct this study from the Superintendent of Davis School District, the Director of Special Services of Davis School District, and the supervisor of the itinerant teachers, permission was obtained from the three school principals and the parents of the fourth grade students in those schools. In

September, 2001 all fourth grade students whose parents had given permission were given the Test of Written Language-3 (TOLD-3) and the Gray Oral Reading Test-4 (GORT-4) as a pre-test. Fourth grade students entering the school after the pre-tests were given were not considered for this study. Frequent absences would affect the progress of the students; therefore, the students who were absent more than six of the 24 sessions (25% of the time) were dropped from the study. These students continued to receive remedial instruction in the pullout groups when they were present. Two students at Lee Elementary and two students at Hicks Elementary had at least 75% attendance and parental permission to participate in the study; two were randomly selected from the three students at Wade Elementary/Middle School. These students were given the TOWL-3 and GORT-4 as post-tests in February, 2002. Those students are Cameron, Tom, Jeff, James, Ralph, and Alex.

Cameron

Cameron is a nine-year-old Caucasian male who has attended Lee Elementary School since kindergarten. He is the only student in the group of identified dyslexic fourth graders at these three schools who has not been retained. Prior to entering public school he was evaluated at a local speech pathology clinic for difficulties in language and articulation. He received services from a speech pathologist when he was four years old to correct an articulation problem. His mother reported that he said "tonnie" for "connie, "tite" for "kite," etc. By the time he entered public school he no longer required therapy. His three-year-old sister has the same speech pattern that he had at that age.

Cameron's mother reported that he had a difficult time reading at the end of second grade. At the beginning of third grade he was referred to the School Building Level Committee (SBLC) for a dyslexia assessment due to the reading difficulties in second grade. Math is his academic strength.

Cameron is the older of two children who live with both parents. His sister is six years younger than he. His family's active participation in church was evident in some sentences he wrote in his daily writing samples. Cameron is involved in karate lessons and attends tournaments on the weekends. He also enjoys team sports and plays basketball.

Although many children in Cameron's group were habitually late to the instruction, he was always on time. He offered to go get other children who were late, and helped to set out the folders and pencils. While he was helping he usually had some story to relate about an activity in which he had been involved. During the remedial session he volunteered regularly and sometimes had to be reminded that others needed equal opportunities to participate. He appeared to have difficulty sitting still, even for a few minutes, but he always completed his tasks.

Cameron's teacher was trained in *Project Read* in the fall of this school year. She rated Cameron's ability to read as below average but said he does frequently volunteer to read orally in class. His accuracy of oral answers ranges from average to above average, while accuracy of written answers is below average to average. She indicated that he acts impulsively in class and must frequently be reminded to stop talking so he will not disturb his neighbors. Cameron's mother reported that he enjoys school this year, and she attributed that to his teacher.

Handwriting is a weakness for Cameron. He holds the pencil with a poor grip, and letter formation is inconsistent. Although he was taught cursive handwriting in third grade, he continues to print. When he takes his time and writes carefully, his sentences are legible. Otherwise, some words are difficult to read. His difficulty with writing could classify him as dysgraphic. Classroom accommodations include extended time to complete written work, modified written assignments, and preferential seating.

Cameron's academic history is shown in Table 4.1. His grades suggest he is an average C student although he has made some D's and one F.

Table 4.1

Cameron's Academic History

Grade	Absences	Reading					Math			
K4	N/A	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	3									
1	11.5	B	C	B	C		B	B	B	B
2	2	F	D	B	D		C	C	D	C
3	5.5	D	C	C	C		C	B	C	C
4		C	C				C	B		

Cameron's Iowa Tests of Basic Skills (ITBS) scores (Table 4.2) show higher performance in math than in reading, but reading, language, and math totals all fall within the average range. These two tables suggest that Cameron is an average student.

Table 4.2

Iowa Tests of Basic Skills

(scores in percentiles)

Year	2000	2001
Reading total	37	44
Language total	29	27
Math total	50	67

The Gray Oral Reading Test-4 (GORT 4), shown in Table 4.3, indicates improvement in reading rate, accuracy, and fluency. Cameron's scores in those areas were in the below average range on the pre-test but in the average range on the post-test. Although his comprehension score declined between the pre-test and post-test, it remained in the average range. Unfortunately, testing situations are not always conducive to optimal performance. Some children perform better in isolated settings. Because there was no room available for the post-test, it was given in the hallway near his classroom. Children were walking back and forth in the hall, and it is possible that he was unable to focus his attention on the passage for comprehension.

Table 4.3

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.6	7.6	7.6	9.6		8.3	8.9	8.3	8.9
G.E.	2.4	2.4	2.4	4.4		3.2	3.7	3.2	3.7
%tile	16	16	9	50		25	37	37	37

On the Test of Written Language-3 (TOWL-3), shown in Table 4.4, Cameron's scores remained fairly stable. There was slight improvement in vocabulary, logical sentences, and spontaneous writing. He did move from the below average to the low average range in these areas.

Table 4.4

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	7.6	<7.0	7.0	<7.0	7.6			8.3	<7.0	<7.0	7.0	7.6	
G.E.	2.4	<2.0	2.0	<2.0	2.4			3.2	<2.0	<2.0	2.0	2.4	
%tile	25	9	9	16	25	16		37	9	9	25	25	23

Although he has not been labeled as dysgraphic, Cameron has many of the characteristics of dysgraphia. His handwriting is almost illegible at times; if the person scoring the test cannot read what he has written, he will not score well. Although he progressed to writing good sentences, such as "The little girl went to the park to play" and "On Thursday and Friday I have a basketball game," he continues to struggle with spelling and letter formation. Unless reminded he seldom remembers to begin the sentence with a capital letter and end with a period. As Cameron gets older he might need to do the bulk of his written work on a word processor. The word processing program will assist him with spelling, capitalization, and punctuation. He may always struggle to write in a conventional manner. However, with guidance in process writing, he will be able to write reports and narratives. He will probably always need extended time so that he can

go back over what he has written to make corrections in spelling and punctuation. An IAP accommodation as he gets older may be the assistance of a peer to read over his written work.

Tom

Tom is a ten-year-old African American male who has attended Lee Elementary School since kindergarten. He was referred to the School Building Level Committee (SBLC) for a dyslexia evaluation due to reading and written language difficulties in third grade. He was also experiencing difficulty with written math problems. He is repeating the fourth grade this year because he failed the high stakes LEAP test in reading/ language arts. He also scored below basic level on the social studies portion of the test. He went to summer school and again failed to pass the reading/ language arts portion. In the spring he missed basic level by 15 points; in the summer he missed the basic level by four points.

Tom is the younger of two children who live with their mother. His sister is four years older than he. Although his mother has little contact with the school on a regular basis, she does sign papers in order for him to receive extra help. In addition to this remedial instruction he is receiving after-school tutoring at the school. He said that he didn't like having to stay after school. Tom did not mention particular activities that his family enjoyed. He said very little when other children discussed their weekend adventures.

Tom's teacher was trained in *Project Read* in the fall of this school year. She rated Tom's ability to read as below average but said he does frequently volunteer to read orally in class. His accuracy of oral answers is above

average, while accuracy of written answers is average. When Lee Elementary School opened a special class for repeating fourth grade students in late October, Tom's teacher requested that he remain with her. He often shuts down and refuses to work; she felt that he trusted her and would be more likely to work for her than in the new class setting.

Tom walked slowly and was consistently late to the remedial instruction. He said he didn't want to be there and often did not begin his tasks until the others were almost finished. When assistance was offered he made faces. The size of his remedial group (nine third and fourth graders) was inappropriate for his needs. In a one-on-one situation he was much more productive. He was always polite, but he seldom completed his tasks. When told that the remedial instruction was being suspended for fourth graders until after the LEAP test, he complained that he wanted to come. Tom wrote very small, and the letters were light. He appeared to lack confidence in his ability to perform well, but he didn't respond well to positive feedback. Classroom accommodations include extended time on classwork, homework, and written tests, small group testing, and oral testing.

Tom's academic history is shown in Table 4.5. His grades suggest he is an average C student although he has made some A's and some F's.

Table 4.5

Tom's Academic History

Grade	Absences	Reading					Math			
K4	N/A	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	8									
1	1.5	C	B	C	D		C	B	C	B
2	0	F	C	D	F		B	B	B	A
3	4.5	C	D	D	D		C	B	A	C
4	12	C	C	C	C		D	C	B	C
4		C	C				B	A		

Tom's Iowa Tests of Basic Skills (ITBS) scores (Table 4.6) show higher performance in math than in reading, but the margin narrowed in third grade. Except for the reading score in second grade, reading, language, and math totals all fall within the average range. Tom took the fourth grade LEAP last spring and fall. Although he passed the math portion, he failed the reading/language arts twice.

Table 4.6

Iowa Tests of Basic Skills

(scores in percentiles)

Year	1999	2000
Reading total	14	44
Language total	59	45
Math total	53	47

The Gray Oral Reading Test-4 (GORT-4), shown in Table 4.7, indicates consistent comprehension performance and a slight decline in rate, accuracy, and fluency.

Comprehension scores are in the below average range; rate, accuracy, and fluency scores are in the very poor range. It is felt that Tom's lack of confidence in his ability as a learner adversely affected his performance.

Table 4.7

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.3	7.3	7.3	8.0		7.0	6.9	6.9	8.9
G.E.	2.2	2.2	2.2	3.0		2.0	1.7	1.7	3.7
%tile	2	5	2	16		1	2	<1	16

On the Test of Written Language-3 (TOWL-3), shown in Table 4.8, Tom's scores changed little. Vocabulary, logical sentences, and sentence combining remained the same. Spelling dropped slightly, and style and spontaneous writing rose. However, his performance remained in the very poor to low average range.

Table 4.8

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	8.9	<7.0	<7.0	9.9			<7.0	8.3	7.6	<7.0	9.9	
G.E.	<2.0	3.7	<2.0	<2.0	4.7			<2.0	3.2	2.4	<2.0	4.7	
%tile	5	16	5	<1	25	<1		5	2	16	<1	25	4

Tom is a student whom teachers find difficult to motivate. He appears not to be interested in academic achievement, which is possibly a result of repeated lack of success. He is not a behavior problem; he simply does not complete his tasks. Although he arrived at school on time, he was consistently late to the remedial instruction. Perhaps had his group been smaller and at a time when everyone arrived at the same time, he would have performed better. He seemed to prefer specific guidance in writing and enjoyed the "bare bones" sentences. Although many of the other children in his group were eager to move on to more complex sentences, Tom was more likely to write sentences like "Girls laugh." or "Dogs howl." When he was directed to write simple sentences and given a model to follow he appeared more comfortable. He did progress to writing sentences with several predicate expanders, such as "People talk at night in the car." Tom used a mixture of cursive and manuscript writing; his handwriting was generally very small.

Jeff

Jeff is a ten-year-old Caucasian male who has attended Wade Elementary/Middle School since first grade. He attended a very small country school for Early Childhood Education (ECE), or K-4, and kindergarten. He was retained in second grade due to reading problems. The second year of second grade the SBLC requested a school assessment to determine whether Jeff exhibited characteristics of dyslexia. When the SBLC qualified him to receive services as a dyslexic student, his mother had many questions. She was relieved to find out more about his reading difficulties. She reported that he would cry at night because he knew he couldn’t read like the other children in

his classroom. Although she frequently spoke positively about his teachers, she said that heterogeneous grouping for reading had convinced Jeff that he could not read. He was acutely aware that his skills were not up to par with the others in his reading group. His brother who was two years younger was also beginning to pass him in reading skills. Her main concern was getting him through school as a whole person because she knew he was able to perform non-reading tasks well. His mother sometimes substitutes at Wade Elementary/ Middle School and is available to come to the school to help when needed.

Although Jeff's parents are very supportive of teachers' efforts, his mother stated that the school had been lax about providing appropriate instruction for him. She felt that valuable time had been wasted prior to the school's identifying him as dyslexic. She reported that Jeff liked school well enough, but that he was very uncomfortable about testing. The high stakes test in fourth grade does appear to hang over students like an ominous cloud most of the year. Jeff's mother's comments suggested that she felt some guilt about the inability to provide private tutoring. She hoped that the school would be able to meet his needs more appropriately, but she was also very receptive to suggestions for helping him at home. She indicated that Jeff lacked confidence in his ability to succeed as a learner. Many parents have voiced concerns that their children have become so fearful of the testing in the spring of the year that they lose their confidence to do well.

Jeff is the older of two boys who live with both parents. They live in a very small rural town, and Jeff is interested in raising rabbits, riding go-carts, and

hunting. At the beginning of the remedial sessions he often chatted with the other two children about hunting adventures or fixing up his go-cart. He openly talked about his dislike of school. Several times he mentioned moving to a school in Texas (he lives in an area where children frequently cross the state line to attend school).

Jeff's teacher has been trained in *Project Read* and frequently asked for feedback concerning appropriate instruction and accommodations for the three dyslexic students in her class. Occasionally she sent worksheets for us to review in our remedial instruction time when she felt the boys needed clarification. One such time the skill was doubling the final consonant before adding a suffix. Jeff beamed as he explained how to spell the words correctly to the other two boys. This was a rule he had found easy to remember, and success felt good to him. I asked him why this rule was easy for him, and he replied that it had been taught over and over for several years. Repetition appeared to be a key element in successful learning for him. In the classroom Jeff's teacher rated him as being below average in ability to read, accuracy of oral and written responses, and general participation. She said he never volunteers to read orally in class.

Jeff's academic history is shown in Table 4.9. His grades suggest he is an average C student although he has made some D's and F's.

Table 4.9

Jeff's Academic History

Grade	Absences	Reading					Math			
K4	28.5	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	16									
1	13	C	C	C	B		C	B	B	B
2	9	D	D	D	F		C	D	F	F
2	15.5	C	B	B	C		C	A	C	C
3	7	C	B	A	B		B	A	B	B
4		C	C				C	C		

Jeff's Iowa Tests of Basic Skills (ITBS) scores (Table 4.10) show improvement in both math and reading over the three-year period. The second year was a repeat of second grade, but above average scores in reading and math were maintained in third grade. Although he has test accommodations that allow for tests to be read aloud, except for reading comprehension, and for extended time, his performance on the ITBS suggests that he is a strong student. His grades are inconsistent with the standardized test scores. Jeff's comments during the remedial instruction indicated that he simply isn't interested in school. Perhaps he performs better on standardized tests because he realizes that a good score is necessary for success. Day to day assignments may seem less important to him.

Table 4.10

Iowa Tests of Basic Skills

(scores in percentiles)

Year	1999	2000	2001
Reading total	31	76	87
Language total	54	87	65
Math total	55	90	87

The Gray Oral Reading Test-4 (GORT-4), shown in Table 4.11, shows slight improvement in reading rate, accuracy, and fluency. Comprehension improved significantly. Although speed and accuracy in reading can contribute to better comprehension of text, slow reading rate and accuracy is characteristic of students with dyslexia. With extended time to read information, Jeff should perform well on written tests.

Table 4.11

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	6.0	6.9	6.6	8.3		7.3	7.6	7.6	11.6
G.E.	1.0	1.7	1.4	3.2		2.2	2.4	2.4	6.4
%tile	1	1	<1	16		2	5	1	63

On the Test of Written Language-3 (TOWL-3), shown in table 4.12, Jeff's vocabulary and style scores dropped slightly and the combining sentences score improved slightly. On Form B there were more questions dictated on the style subtest; Jeff neglected to use any punctuation

other than a period. Therefore, his score on the style subtest was lower. The story he wrote for the spontaneous writing was of better quality on Form B than on Form A.

Table 4.12

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	8.9	8.6	8.6	9.3			<7.0	8.9	7.6	8.6	10.6	
G.E.	<2.0	3.7	3.4	3.4	4.2			<2.0	3.7	2.4	3.4	5.4	
%tile	9	25	25	25	37	19		9	25	16	25	50	73

Responses in the remedial setting indicated Jeff's understanding of the English language had improved during this school year. At the beginning of this study the boys in his group were asked what they should do when they encounter a word that they don't know in their reading assignment. His answer was simply, "Skip it." Three months later he was beginning to use some strategies to decode the unfamiliar words. He was reluctant to participate in the writing activities at the beginning of each session, and now is writing lengthy sentences. He smiled as he wrote "The Tornato on Saterday suked up the school and put it on the botom of the picific ochen with all the other schools!!!!!!!!!" The next step is to help him with orthographic rules to spell "bottom" and "sucked." Guidance in listening for the sounds in words may assist him with spelling words like "tornado" and "Pacific."

Although Jeff was taught cursive handwriting last year, he continues to print. Letter formation is poor, but his words are generally legible. He might produce better

quality written assignments if he were allowed to use a word processor. Spell check and reminders to use capital letters and end punctuation will reduce the mental burden of writing. Word processors allow students such as Jeff to focus more on the content and mechanics of their writing by reducing the drudgery of handwriting.

James

James is an eleven-year-old African American male who has attended Wade Elementary/Middle School since kindergarten. He was retained in kindergarten and in first grade. Until January of this school year he received the services of the speech pathologist. He continues to have difficulty pronouncing words, and his speech at times is hard to understand. However, when he slows down and speaks clearly, he is generally able to make himself understood. This speech pattern carries over into his reading. When he slows down to break words into syllables he is much more successful. He was referred to the SBLC for a dyslexia assessment in second grade due to continuing reading difficulties and has been served in a remedial pullout program since third grade. James suffers from asthma which caused excessive absences from school when he was in kindergarten and first grade.

James is the middle child of three children who live with both parents. The other two children are girls; one is in second grade, and the other in high school. The parents are very supportive of their children's education, and when a conference is held, both attend. The speech pathologist at Wade Elementary/Middle School has known the family since the older girl was in elementary school. Each child has received speech therapy to correct articulation difficulties. The speech pathologist describes the family

as a strong cohesive unit, similar to families of a generation ago. They live in a rural setting, and the children have few experiences away from their small community. James has never traveled more than 30 miles from his home. Although the children have limited knowledge of the world, their parents do expect them to perform well in school so they will have a better life as adults.

James' teacher has been trained in *Project Read* and has frequently asked for feedback concerning appropriate instruction and accommodations for the three dyslexic students in her class. She rated his ability to read and the accuracy of oral and written responses as being below average. However, she rated his participation as being above average. He sometimes volunteers to read orally in class.

James has a pleasant personality which attracts people to him. His eyes sparkle as he talks even though he has difficulty communicating orally. He is kind and considerate of others, and he works hard to accomplish tasks assigned to him.

Although James has difficulty formulating oral responses, when given time to sort out his thoughts, the answers are usually correct. He frequently has to vocalize the information before he can write it on paper. His classroom accommodations include extended time on all written assignments and tests, as well as tests read aloud. He also has difficulty with accuracy in calculation and is allowed to use a calculator in the classroom and on tests.

James' academic history is shown in Table 4.13. His grades suggest he is an average C student although he has made some D's and one F.

Table 4.13

James' Academic History

Grade	Absences	Reading					Math			
K5	28	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	45									
1	21	C	D	D	F		A	B	B	C
1	12	A	A	B	C		A	A	B	B
2	3.5	C	D	D	C		B	B	C	C
3	2	B	B	A	B		C	C	C	B
4		C	B				C	C		

His Iowa Tests of Basic Skills (ITBS) scores (Table 4.14) show above average performance in language, perhaps due to speech and language therapy. Reading and math scores are consistently in the average range, with reading being slightly stronger in 2001. Although both the ITBS scores and his classroom grades indicate that James is just an average student, his work ethic will probably assist him in accomplishing his goals in life.

Table 4.14

Iowa Tests of Basic Skills

(scores in percentiles)

Year	2000	2001
Reading total	31	41
Language total	77	80
Math total	32	38

The Gray Oral Reading Test-4 (GORT 4), shown in Table 4.15, indicates consistent performance in reading rate, accuracy, and fluency. These scores are well below average range. James's speech and his oral reading follow similar patterns. However, James' comprehension score improved significantly. During the remedial sessions James frequently was the first to identify the function of the words in the sentences. Perhaps understanding the structure of the sentence assisted him with comprehension.

Table 4.15

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	8.0	8.0	8.0	10.9		8.6	8.3	8.0	12.3
G.E.	3.0	3.0	3.0	5.7		3.4	3.2	3.0	7.2
%tile	5	5	2	37		5	5	1	63

On the Test of Written Language-3 (TOWL-3), shown in Table 4.16, James' scores improved on every subtest. On Form B he was one of the few who remembered to use question marks after a question, making his style subtest performance in the average range. His spelling score showed improvement on the post-test. Although the spelling of words in one sentence became easier for him, he continued to exhibit weakness in this area as more writing was required. His spontaneous writing remained poor.

Table 4.16

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	<7.0	7.6	<7.0	9.3			8.3	8.3	10.6	8.6	10.6	
G.E.	<2.0	<2.0	2.4	<2.0	4.2			3.2	3.2	5.4	3.4	5.4	
%tile	1	5	16	<1	25	4		16	16	37	16	37	8

Although James continued to have difficulty expressing himself orally, he talked freely in the remedial setting. The three boys in his group appeared to be good friends. They often verbalized their sentences before writing them at the beginning of the lesson. At times they attempted to surpass each other in sentence length. At the beginning of the year, James wrote sentences like "I went fishing." He progressed to writing "My crazy cousin and I ran very fast form (from) a mean pit bull to my grandmother's house." Although James usually remembered to use correct punctuation, spelling remained a challenge for him. He often asked for help to spell a word. Using a word processor may assist him in producing better quality writings, but spell check can only provide suggestions when the spelling is similar to the real word. James continues to need practice with sound/symbol correspondence. With guidance he can usually spell words correctly, but he has not progressed to a level of confidence that allows him to work independently. He is beginning to write in cursive.

Ralph

Ralph is a ten-year-old Caucasian male who has attended Hicks Elementary School since kindergarten. He was enrolled in another school for the Early Childhood

Education (ECE) but was not allowed to stay because he continued to wet and soil his clothes. He also refused to eat at school. The following year he enrolled in kindergarten at Hicks Elementary School. He was retained in third grade. In his first year of third grade he was referred to the SBLC for a dyslexia assessment. His teacher was concerned because he produced so little in the classroom. Although Ralph was born in a South American country and his natural father was from that country, his speech does not indicate he speaks another language at home. Ralph's records indicate he has asthma.

Ralph lives with his mother, stepfather, and a younger half-brother who is three years younger than he. Written communication with his mother suggests that she also has difficulty with written language. Words such as teacher (theacher) are misspelled, and her sentences lack proper grammatical structure. She reported that the school had not provided appropriate help for Ralph to be successful. She felt that "theachers dont like to have a child with special neades in their class, and dont help them like they are suposed to."

Ralph's language arts teacher voluntarily took *Project Read* training several summers ago. She is particularly sensitive to learning differences and has referred several students for dyslexia assessments. She said that Ralph works very slowly and often does not complete his assignments. However, the assignments that he turns in are well done. She rated his reading ability as average and his oral and written responses as above average. He never volunteers to read orally in class.

A person observing Ralph in the classroom might well wonder if he is daydreaming or simply not paying attention. He displays little expression on his face to indicate there is activity going on in his mind. Even when directly asked a question he is slow to respond. Teachers are frequently tempted to repeat the question or ask him if he heard what was said. If sufficient wait time is given, however, Ralph generally produces an appropriate answer.

Although Ralph responded to the comments of the others in the remedial setting of two to five students, he seldom volunteered information. He worked diligently on assigned tasks and generally performed them well. As he began a task he kept his eyes on his paper and worked steadily until he finished. He was consistently the last one to finish. His classroom accommodations include extended time for oral and written answers and reduced written assignments.

In the remedial setting other students frequently had to revise their sentences to provide the structure requested. For example, the group might be told to write a "bare bones" sentence with a predicate expander and a subject describer. A subject describer is difficult to use with the subject "I," and students would need guidance in changing the words to match the prompt. Suggestions would be made, such as changing the subject "I" to "the boy" so the boy could be described. Ralph consistently demonstrated his understanding of the structure of the sentence by following directions with his first sentence each lesson. For example, when asked to write a "bare bones" sentence with two predicate expanders, he wrote "Moms shop alot in the store." The "bare bones" would be Moms shop; alot is a predicate expander telling when; and in the store is a predicate expander telling where.)

Ralph's academic history is shown in Table 4.17. His grades suggest he is a below average student in reading and math. He does, however, have A's and B's in other subject areas.

Table 4.17

Ralph's Academic History

Grade	Absences	Reading					Math			
K4	suspended	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	16									
1	10	C	B	C	C		B	B	C	C
2	8.5	D	F	C	C		C	F	B	C
3	15.3	C	C	F	F		D	D	F	F
3	16	C	A	C	C		B	B	B	C
4		C	C				C	C		

His Iowa Tests of Basic Skills (ITBS) scores (Table 4.18) show a steady increase in reading and math performance. Hebegan in the low average to below average range and has progressed to strong average. The language scores dropped the first year of third grade but came back up to average the second year of third grade.

Table 4.18

Iowa Tests of Basic Skills

(scores in percentiles)

Year	1999	2000	2001
Reading total	33	42	66
Language total	49	19	51
Math total	24	38	57

The Gray Oral Reading Test-4 (GORT-4), shown in Table 4.19, indicates decline in reading accuracy, fluency, and comprehension. Although comprehension remains in the average range, reading accuracy fell to below average. Ralph's teacher frequently verbalized her objection to his being pulled from her class. Ralph was taken from her class to be given the post-test, and it is possible he was attempting to finish quickly in order to avoid missing more of her class.

Table 4.19

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.6	9.6	8.3	11.0		7.9	8.6	8.0	9.6
G.E.	2.4	4.4	3.2	6.0		2.7	3.4	3.0	4.4
%tile	5	37	16	63		5	16	9	37

On the Test of Written Language-3 (TOWL-3), shown in Table 4.20, all of Ralph's scores improved, except for style. On Form B there were more questions dictated on the style subtest; Ralph neglected to use any punctuation other than a period. Therefore, his score on the style subtest was lower. The story he wrote for the spontaneous writing was of better quality on Form B than on Form A. On all subtests except spontaneous writing and style he improved from the low average range to the strong average range.

Table 4.20

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	9.3	8.3	8.6	8.6	7.6			11.3	11.3	7.6	11.6	10.6	
G.E.	4.2	3.2	3.4	3.4	2.4			6.2	6.2	2.4	6.2	5.4	
%tile	37	25	25	25	25	50		63	63	16	63	50	61

Although Ralph would run and play on the playground, his movements in the classroom were slow and methodical. He seldom talked. As soon as an assignment was given, he began his task and worked without looking up until it was completed. He was consistently the last student to finish.

Alex

Alex is an eleven-year-old Caucasian male who has attended Hicks Elementary School since kindergarten, with the exception of one year of home schooling. He has been retained twice, once in first grade and once in third grade. At the end of second grade his mother felt that home schooling would be more appropriate because of his difficulties at school. However, when he re-entered Hicks Elementary School the following year and was tested for placement, the scores indicated he should be placed in third grade. He has been diagnosed with Attention Deficit Hyperactive Disorder (ADHD) by a medical doctor and is on medication. Several medications and doses were tried before his behavior became manageable. In addition, the SBLC at Hicks determined he has characteristics of dyslexia.

When Alex was assessed for dyslexia the second year of first grade he could not remain in his seat for more than ten minutes. However, as long as he was allowed to stand

and move at the table, he completed each task he was asked to perform. During the assessment he was asked to spell words and write a story. The first few words were very neatly written, but the longer he wrote the worse his handwriting became. He continues to have difficulty maintaining neat penmanship when the writing assignment becomes lengthy.

Alex is an only child who lives with his mother. She has diligently sought help for him, including camps for ADHD children and after school tutoring. He has emerged as a well-behaved young man who strives to be a good student. Last grading period he was on the B Honor Roll. In the remedial setting Alex frequently lent support to the others in his group. Even though his oral reading is extremely dysfluent, he often volunteered to read sentences aloud in the remedial group. Alex missed only one day of remedial instruction this school year.

Alex's Language Arts/Reading teacher has not been trained in *Project Read*. Although he was on the B Honor Roll, his teacher did not favorably rate his classroom performance in relation to the other students in his class. She did not believe he should receive a certificate for being on the B-Honor Roll because some tests in science and social studies were read aloud to him. At Hicks Elementary School a child must either ask for help with reading a test or make below a C to have the test read aloud. Alex has become his own advocate and will ask for help when needed. However, tests in science and social studies should reflect his knowledge of the content rather than his ability to read and comprehend the words. Even a C is not a valid reflection of his knowledge and thinking skills.

Alex's classroom accommodations include extended time on classwork and written tests. Written assignments and tests are to be read aloud to him when requested. Directions are to be given in more than one way. Although Alex has become his own advocate, asking for help when needed, he often works extremely hard to complete the task independently.

Alex's academic history is shown in Table 4.21. His grades suggest he is a strong average C student. Although he has made some D's and F's, he has also made several A's.

Table 4.21

Alex's Academic History

Grade	Absences	Reading					Math			
K4	28.5	Grading period 1	2	3	4		Grading period 1	2	3	4
K5	16									
1	13	C	D	F	F		A	B	C	C
1	9	B	C	D	D		A	B	B	B
2	15.5	A	C	C	D		A	B	B	B
3	7	B	C	F	C		B	C	A	A
4		C	C				B	A		

Alex's Iowa Tests of Basic Skills (ITBS) scores (Table 4.22) show marked improvement in both reading and math. Alex's scores are in the above average range in these two areas. Although math is frequently a strength for dyslexic students, their reading scores are seldom above average.

Alex is allowed extended time to complete the reading tasks on standardized tests, but he must read the material himself.

Table 4.22

Iowa Tests of Basic Skills

(scores in percentiles)

Year	1999	2000	2001
Reading total	31	76	87
Language total	54	87	65
Math total	55	90	87

The Gray Oral Reading Test-4 (GORT 4), shown in Table 4.23, reflects his oral reading rate, accuracy, and fluency. His rate did improve slightly on the post-test. He reads very slowly and with excessive miscues. However, he appears to be able to get meaning from his reading. His comprehension scores remained in the average range. His classroom teachers agreed that his comprehension is superb, but his oral reading reflects a severe reading disability. Since Alex is eleven-years-old it is unlikely his oral reading will become more fluent. Silent reading may be easier for him because he doesn't have to make the words "sound right." As long as he can comprehend independently, extra time can be given for him to read passages.

Table 4.23

GORT-4 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	<6.0	6.0	<6.0	11.0		6.9	6.6	<6.0	10.6
G.E.	<1.0	1.0	<1.0	6.0		1.7	1.4	<1.0	5.4
%tile	<1	<1	<1	37		1	<1	<1	37

On the Test of Written Language-3 (TOWL-3), shown in Table 4.24, Alex's spelling and style scores declined, and the vocabulary and logical sentences scores improved. The combining sentences score remained constant. On Form B there were more questions dictated on the style subtest; Alex neglected to use any punctuation other than a period. Therefore, his score on the style subtest was lower. Alex requested that some words be read to him, but the TOWL-3 requires that students read the words and sentences independently. His spontaneous writing remained poor on both Form A and Form B. This subtest is a timed one, and Alex struggles to interact with printed words in a timely fashion. In his daily writing he produced sentences with the appropriate structure. When asked to write a sentence with two subject describers and two predicate expanders, he wrote "The sily little boy ran to the stor very fast." Alex continues to have severe spelling difficulties; he avoids words he knows he cannot spell correctly. He writes in manuscript that becomes less legible as the length of the assignment increases.

Table 4.24

TOWL-3 Scores

(age equivalent, grade equivalent, and percentile)

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	9.3	7.6	9.6	7.0	11.3			10.9	<7.0	8.6	9.6	11.9	
G.E.	4.2	2.2	4.4	2.0	6.2			5.7	<2.0	3.4	4.4	6.7	
%tile	25	9	25	9	50	<1		37	5	16	25	50	1

It is interesting to note the variation of scores on subtests within one test. Dyslexic students frequently have what some call a "sawblade" effect on their tests. If the scores were plotted on a bar graph, the bars would have a variety of heights. These students exhibit strengths in some areas but are unable to do well on all subtests. There is also inconsistency from one measure of performance to another. Most of the students in this study scored in the strong average range on the ITBS. Their classroom grades didn't always reflect strong average performance.

Discussion

Research Questions

1. Does the student's reading (decoding and comprehension) ability improve after instruction in a multisensory structured language program including a written language component?

Dyslexic students have a reading disability that will affect their reading performance. They can be expected to perform poorly on tests of rate, accuracy, and fluency. Although they can be taught strategies to improve rate and accuracy, by fourth grade the emphasis is generally placed on comprehension rather than on decoding. Limited time

within the school day necessitates deciding which skills are more important, and comprehension is essential if the students are to understand the content materials.

In this study the accuracy score on the GORT-4 was used to determine the decoding progress the students made. Two of the six students, Cameron and Alex, showed improvement in reading accuracy. Although decoding was not directly addressed, instruction in breaking words into syllables and determining whether a vowel letter would have a short or long sound was incidental. If the students showed lack of understanding of these skills in their oral reading of sentences during the remedial instruction, the teachable moment was taken to clear misunderstandings. For example, if the student read "hid" when the word was "hide," the teacher modeled the thought process they might use to decide what sound the vowel should have. In the "think aloud" moments, syllable types were reviewed to determine whether the vowel should be long or short. Many of the errors made by dyslexic students involve short words. Parents frequently marvel that their children seem to be able to read words like "electricity" yet fail to correctly read words such as "what." Frequent reinforcement of the rules of our language (for example, when a single letter vowel is at the end of the word or syllable it has the long sound; when it is followed by a consonant it has the short sound) assists the students in developing an understanding of why certain letters have certain sounds in certain situations.

Two students, Jeff and James, made improvement on their GORT-4 comprehension scores. The other four students either remained constant or had a lower score on the post-test. Jeff and James were in a language arts class with a

teacher trained in *Project Read*, and although she was not using *Project Read* Written Expression in class, she was using the strategies from *Project Read* Linguistics and Comprehension (Report Form and Story Form). Whether or not *Project Read* strategies were being used regularly in the classroom was obvious in the students' reactions to the remedial activities. They confidently join in when the strategies are familiar to them. Jeff and James were receiving instruction in Multisensory Grammar in the classroom. When subjects (nouns) were introduced, they quickly related them to the yellow words in the classroom. When prepositions were introduced as beginning words for the "where" predicate expanders, they recognized them as the purple words.

Cameron and Tom were in a group of nine students from third and fourth grade. Different classrooms were used for the remedial instruction from time to time. Because the instruction was to begin at 8:00 and students came in between 8:05 and 8:20, their lessons were always abbreviated. The situation at Lee Elementary School reduced the opportunity for quality remedial instruction. Tom may have made more progress if he had been in a smaller group with more structure.

Ralph and Alex received two thirty-minute lessons each week instead of forty-minute lessons because their principal refused to let them be pulled during language arts. Ralph was pulled from social studies and Alex came from math. Therefore, they missed half of the social studies or math instruction twice each week. Their teachers openly resented this intrusion. Ralph’s teacher stated several times that he would have to stay in at recess to make up the work he had missed. He works very slowly and

probably needed the break from seat work at recess time. He was always the last in his group to finish a written assignment, but he worked steadily and produced quality work.

The results of the GORT-4 suggest that reading comprehension can be positively affected by intentional instruction in the structure of the sentence. However, remedial instruction must be consistent and is more effective when the classroom teacher views it positively. Although pullout programs are less effective than the appropriate instruction in the classroom, the effectiveness is enhanced by the carryover of the same strategies in the classroom. The ideal situation would be for the remedial instruction to reinforce the instruction in the classroom, providing more opportunities for guided practice in a setting where misconceptions can be quickly addressed.

The Louisiana Law for the Education of the Dyslexic Student (Bulletin 1903, 2000) states that identified students are to receive a minimum of 150 minutes of instruction each week in the appropriate structured language program. These students were receiving 80 minutes (or less) in the written expression component of an appropriate structured language program. Four of the six did make progress in either decoding or reading comprehension.

2. How does instruction in a multisensory structured language program containing a specific written language component affect a student's written language?

People with a language processing disorder, such as dyslexia, have difficulty thinking of the appropriate words to express their ideas. Because written language is a permanent record of our thoughts (as opposed to spoken

words which disappear as soon as they leave the speaker's mouth), care should be taken to ensure that the message is communicated properly. Although dyslexic children have intelligent thoughts, in their written language they frequently rely on very simplistic sentences. Instruction in the structure of a sentence can provide a framework for their words. Teachers in lower elementary school do show the students that sentences should begin with capital letters and end with correct punctuation. However, some children require visual reminders. The sentence frame in *Project Read* can be used as long as it is needed to remind students how a sentence should look.

The more severely dysgraphic students, Cameron and Alex, continued to need reminders. Ralph was the only one who consistently used question marks at the end of questions. Dysgraphia is a related disorder of dyslexia that is manifested in written language. Dyslexic students who are also dysgraphic should be given instruction in the proper way to form letters through the third and fourth grades. However, by the end of fourth grade the focus should shift to teaching keyboarding skills so the students can use a word processor. After they get their thoughts recorded, they can go back to edit the capitalization and punctuation without the mental overload of trying to remember how to form the letters.

One of the advantages of *Project Read* Written Expression is that students can be told exactly what is expected in a sentence. Instead of asking them to write a sentence with at least eight words that contains good description, they can be given a model. For example, they may be told to write a good "bare bones" sentence with two subject describers and two predicate expanders. This

directive requires them to first think of their subject and the action of that subject. After they have chosen the foundation of the sentence, the next step is to think of how, when, where, or why the action of the subject occurred. Finally, they need describing words for the subject. When asked to write a good "bare bones" sentence with two subject describers and two predicate expanders, Ralph wrote “The very small kid went up the stairs to his room.” Using the same format he wrote, “The tall bisness man went up the elevator in his office.” At the beginning of the year he wrote sentences like “I went to my grandmals.” The chance of a string of unrelated words becomes much less likely when students are given a structure to follow.

Jeff’s work showed the most dramatic change among the students during the remedial instruction. With the framework of expectation provided by Written Expression, he knew exactly what was expected in his sentences. Although he continued to talk about his dislike of school, he appeared to enjoy trying to create longer and longer sentences. The students in his group continually tried to find ways to increase the length of sentences by adding more predicate expanders.

Sentence fragments are abstract, and students may not understand why a string of several words is not a complete sentence. When a fragment is written, the student can be encouraged to find the "bare bones" (subject and predicate). If both the subject and the action of that subject (the predicate) are not present, the sentence is not complete. All six students progressed in the length and quality of their sentences in the remedial setting. Good teaching involves providing a prompt to assist the students

in producing the desired product. Asking for sentences that contain certain elements provides a prompt that the dyslexic student can understand.

3. How does a student's written language performance in a pullout setting compare to that student's written language performance in the classroom setting?

Determining how much improvement in writing is due to a remedial pullout program and how much is due to classroom instruction is difficult without a control group. That situation was not available for this study. What did become evident as the study progressed was the connections the students were able to make using information from the classroom. The classroom teacher at Wade Elementary/Middle School had been trained in a program that uses color to code different parts of speech. As the functions of various parts of the sentence were introduced in the remedial program, those students would comment on what color they used for that kind of word in class. For example, the nouns are coded yellow and the predicates are coded orange. When the "bare bones" sentence was introduced, the students at Wade said, "Oh, a 'bare bones' sentence is a yellow and an orange." As subject describers were introduced, they recognized them as the blue words in the classroom. The "where" predicate expanders are generally prepositional phrases, and they recognized them as the phrases beginning with a green word.

Dyslexic students may find the process of writing extremely demanding. There are many mental processes which must work simultaneously in order for writing to flow. The students must think of what they want to say, what words will communicate that thought, how to put those words into sentences, how to spell the words, how to write the

letters, and then they must remember to start sentences with a capital letter and end with proper punctuation all at one time. Observation of these students at work quickly reveals those with dysgraphia. Excessive erasures are not uncommon. The child might erase frequently to give the impression that he or she is busy at work even though there are few words written on the page. The erasures may be to correct a word that is spelled incorrectly. After several attempts at spelling, the child may discover that none of them look right.

Five of the six students did show improvement in the spontaneous writing on the TOWL-3. The students who had classroom teachers who were trained in *Project Read* seemed to approach the writing task with more confidence than those from other classrooms. There has been consistent instruction in paragraph writing in all fourth grade classrooms to prepare the children to write on the LEAP. The students in classrooms with teachers who seemed to understand their struggles made more progress with classroom writing. Teacher attitude appeared to play an important role in their written output and grades. Most dyslexic students struggle with written language; they usually produce more quality writing when the teacher provides extra time and guidance. The ultimate test of writing ability for these fourth grade students will come when they take their LEAP test this spring.

Analysis

As data was collected several issues were addressed:

1) academic background of the students
2) participation in the remedial program
3) teacher attitude toward student progress

Standardized test scores from the ITBS and grades provided a foundational academic picture of each student. Grades in reading this school year supplemented that picture with an indication of current progress. One student, Tom, scored in the 14th percentile in reading on the ITBS at the end of second grade. Two students, Jeff and Alex, scored in the 87th percentile at the end of the third grade on the ITBS. (Alex's oral reading was so slow and filled with miscues that it is surprising he scored in the above average range on a standardized test.) Otherwise, all reading scores were in the average range. The reading grades for the two nine-week grading periods included in this study were C's, with the exception of one B made by James. Using these two criteria, the ITBS scores and current grades, the students appear to be average in reading ability. Daily performance, however, suggested otherwise. All six students read slowly and laboriously. None of them mentioned enjoying reading at school or at home. None of them were viewed as good students by their classroom teachers. Although parents reported positive comments about some of the teachers, most of them directly stated that the school had not done enough to provide appropriate instruction for their children. Some even felt that the teachers would prefer not to have their children in their classrooms.

Additional reading information was provided by the pre- and post-test GORT-4 scores. Dysfluency is a characteristic of dyslexia, and all of the students were in the below average to very poor range in fluency. Since the Section 504 law provides for extended time for students to complete tasks, fluency may not be as important for test scores as comprehension. One student, Cameron, improved to

the average range in fluency, but no improvement was observed for the other five students. Interestingly, Cameron's comprehension score was lower on the post-test than on the pre-test of the GORT-4. Ralph's scores dropped on both fluency and comprehension. The post-test comprehension scores for Cameron, Ralph, and Alex were in the low average range. Tom's post-test comprehension score remained below average, but both Jeff and James improved to the high average range.

Although the students at Wade Elementary/Middle School did not live near one another or play together outside of school, they were very congenial and supportive of one another at school. The camaraderie of the three students was evident in their conversations during the remedial instruction. These children showed the most progress on the GORT-4. The students at Hicks Elementary School were kind to one another, but the school setting was much more tense than at Wade. Because of the size of the group at Lee and the time the remediation was provided, this group never demonstrated the support of one another that was evident in the other two schools.

Participation in the remedial program was the second consideration. Cameron and Tom were in the same group of nine third and fourth graders. Although Cameron was usually the first to arrive, the sessions were chronically late in starting due to the situation at that school. Tom was always the last student in that group to arrive. The reading/writing abilities of the nine students varied tremendously. Jeff and James were in a group of three students in a stable remedial situation. The sessions were always in the same room and started on time. Remedial instruction for Ralph and Alex generally started on time

but lasted for 30 minutes instead of 40 at the request of the principal. The two students participated appropriately and never asked if they could remain in their classrooms instead, but this program caused them to miss instruction that was important to them.

A third issue considered in the progress of the students was the training and attitude of their classroom teachers. Cameron and Tom came from the same self-contained classroom. Their teacher was being trained in *Project Read* during the study but had not yet implemented the strategies in the classroom. Remedial instruction occurred during their language arts time. Jeff and James came from a departmentalized situation, and the remedial instruction occurred during their language arts time. This teacher was trained in *Project Read* last year and actively sought input on how to use the strategies with her students. Ralph and Alex also came from a departmentalized situation. Ralph was pulled during social studies, and Alex was pulled from math. The duration of these classes was only an hour each day; therefore the students missed half of their respective classes twice weekly. Alex seemed to handle this situation fairly well. Several times Ralph's teacher commented that he did not need to be missing her instruction and that he would have to stay in at recess the next day to make up the work. Ralph's language arts teacher was trained in *Project Read* several years ago and actively uses the strategies in her classroom. Alex's language arts teacher has not been trained in a multisensory structured language program.

Teacher input about classroom performance was considered. Tom and Zack had a young teacher who seemed to form special bonds with her children. These students were reported to volunteer to read often in class, and their

oral and written accuracy was judged to be below average to average. Both students improved in their spontaneous writing on the TOWL-3.

The teachers of the other students had at least twelve years of classroom experience. Jeff's and James' teacher often sought advice in providing fair accommodations and appropriate instruction. She reported that Jeff seldom volunteered to read in class, and James was reported to have volunteered occasionally. The oral and written answers of both students were judged to be below average. Both children improved in their spontaneous writing of the paragraph on the TOWL-3.

Alex's language arts teacher reported that he occasionally volunteered to read and that his oral and written responses were below average to average. Ralph's language arts teacher, the one who was trained in *Project Read* several years ago and regularly uses the strategies in her classroom, reported that he never volunteers to read orally but that the accuracy of his oral and written responses is above average. She made comments about his difficulty in working quickly but said that his completed work is above average when compared to the other students in his class. Ralph's spontaneous writing improved; Alex's did not. Alex did, however, perform in the average range on some of the writing subtests. While subtest scores on the TOWL-3 were predominately in the below average to poor range, there was improvement on most of the subtests.

In general the academic profiles of the six students placed them in the average range in reading. Five of the six students had been retained at least one year, primarily because of reading difficulties. The two children who showed the greatest gains in reading and writing during the

study were Jeff and James. They came from a language arts classroom with a teacher trained in *Project Read* and consistently received 40 minutes of remedial instruction twice weekly. The results of this study suggest that instruction in a written expression component of a multisensory structured language program can positively affect the writing of a dyslexic student, especially when it is an extension of appropriate classroom experiences.

Chapter 5

Summary and Conclusions

The remedial instruction provided for the fourth grade students in this study did not include consistent instruction in either decoding skills or comprehension strategies. The focus of the instruction was the structure of sentences for written expression. However, the results of the Gray Oral Reading Test-4 (GORT-4) indicated that two of the six students improved in decoding skills and two other students made progress in reading comprehension.

Although improvement in specific subskills on the Test of Written Language-3 (TOWL-3) varied, the sentence structure of the students improved in spontaneous writing. The ease with which the students wrote sentences, as well as the willingness to produce written sentences, demonstrated gains in written expression. The real test of the success of this remedial instruction will be whether the students pass the written portion of the high stakes LEAP test this spring. The students coming from classrooms of teachers who have been trained in a multisensory structured language program showed the most consistent improvement.

Two major issues emerged during the course of this study of the written expression of fourth grade dyslexic students:

1) the educational environment created by school personnel, and
2) instructional strategies.

Although many teachers lack an understanding of the ramifications of dyslexia, the stress placed on dyslexic

students is aggravated by the trend for academic excellence. Those who would be more likely to act out of compassion for a student who is struggling find themselves pushed into inappropriate demands as the result of the stress of standardized testing.

The state where this study was conducted has been plagued with low scores on the National Assessment of Educational Progress (NAEP). In an effort to reform education, content standards have been developed in English Language Arts, Mathematics, Science, and Social Studies to ensure that children receive appropriate instruction. Millions of dollars have been poured into reading and math programs in kindergarten through third grade to provide a solid foundation for learning. A LEAP test that is aligned to the standards is given in fourth grade, and students cannot pass to fifth grade until they have passed the English Language Arts and Mathematics portions. School report cards are issued each year reporting the students' levels of proficiency on the LEAP test and the third grade and fifth grade scores on the Iowa Tests of Basic Skills (ITBS). Teachers have been told that their evaluations will include their students' test data. Student performance has become a major issue.

Public demand for accountability in the school system is warranted. Some schools and teachers have neglected to teach the students entrusted to them. Money from the state and federal government has not always been used wisely in the education of students, and some students have continued to fall in the low performing range. The difficulty with accountability is that the methods employed to determine success often fall short of measuring progress. All students can learn to read and write commensurate with

their abilities, but standardized tests may not assess their actual abilities.

The LEAP test includes reading, writing, and spelling, as well as written math problems, which are typical areas of weakness for dyslexic students. Because all students must write a passage on the LEAP, this study focused on the written expression progress of fourth grade dyslexic students in Davis School District. The experiences of the fourth graders are similar to those of students at other grade levels and can be generalized to dyslexic students in any elementary grade. However, because of the high stakes testing, teacher and parent concern is greater for children in fourth grade than at other levels. Parents begin asking questions about help for the fourth grade LEAP test as early as second grade. Principals are pressured by the Superintendent (who is pressured by the State Department of Education), and this pressure is passed on to the classroom teachers. Whether intentionally or not, the pressure is exerted on children who struggle to maintain good grades. They are labeled "lazy" or "uncooperative," when in reality they are merely slow to process information. This slowness to process, however, is not a lack of mental ability. It is the result of a difference in the way their brains process language; these same students generally excel in non-academic areas. This tension-filled environment is where the dyslexic children must attempt to function every day.

Schoolwork places a mental burden on dyslexic children. They work harder and slower than their non-dyslexic peers, but their efforts seldom produce high quality written language. These children need frequent breaks to recharge their minds, yet they are the very ones who frequently must stay in at recess to complete

unfinished work. One school involved in this study has a high level of tension which is evident as teachers talk in their classrooms. A fourth grade teacher there complained that the children seemed to be fine on the playground, but upon entering the room they developed illnesses and asked to go to the office to check out. She felt they were simply pretending to be sick in order to get out of working. Stress can create physical illness, and it is very possible the headaches and stomach aches were real.

In response to the constant pressure to perform well, many students at this particular school have begun to neglect their assignments. A note was sent to all parents in one grade explaining that students are not completing their class work. Effective immediately a timer will be set at the beginning of the assignment. When the timer rings, all work must be turned in. A grade will be given on the assignment, and there will be no opportunity to finish uncompleted work. While using the timer may be effective in motivating some students to attend to their tasks, the pressure to perform within a certain time frame is very detrimental to dyslexic students. They need extra time to process information and formulate their answers. The stress that has been placed on teachers is passed on to students who lack the maturity and skills to handle the extra tension. In this study the students who made the most progress attended the school where the least pressure was exerted on the teachers. Standards were high, but expectations were realistic.

Dyslexic children have strengths and weaknesses which are unique to each individual. Although many struggle to express themselves in writing, some can write very well. Patricia Polacco (1998), a well-known children's author and

illustrator, is dyslexic. Her personal story is related in her book, *Thank You, Mr. Faulkner*. Drawing and storytelling have always been easy for her, but she could not learn to read. For several years she was able to fool teachers by memorizing. As her inability to read became more obvious she was convinced that she was stupid. Finally a teacher understood her disability and, with his own money procured a tutor to teach her to read.

Another successful author, Stephen J. Cannell (2001), has written scripts for many television programs, including *The Rockford Files*. In the opening session of the 2001 International Dyslexia Association Conference, he related how teacher attitude can affect a child's grades. He said he always felt he could write, but he was not a good student. Even though he studied hard he seldom made good grades, and he was retained several years. In high school he was particularly proud of a poem he had written. When he turned it in to the teacher he got a B-, which was a good grade for him. Later his sister, a good student, needed a poem in a different teacher’s class and turned in his poem without changing anything. She was given the grade A+. His comment was that the teachers thought he was incapable of doing good work and therefore never considered that he could make good grades.

Lack of understanding of what is fair for a dyslexic student was evident in Alex’s teacher’s insistence that he was not qualified for B-Honor Roll. Although his grades were within the 3.0 to 3.4 range, she felt that having some tests read aloud should disqualify him. Tests of reading comprehension are never read aloud to students, only tests in science, social studies, and math. A closer look at the purpose of the test would indicate that reading skills are

to be tested on reading tests, but science, social studies, and math tests should assess a child's knowledge in those areas. A teacher would never deny a visually impaired child glasses or a hearing impaired child a hearing aid. A child with crutches or in a wheel chair would not be held to the same standards as non-physically handicapped students in physical education, yet the invisible disabilities are viewed differently. Children with language processing differences are denied the opportunity to show their intelligence and knowledge when they must read and respond within the same amount of time allotted to students without language processing difficulties.

Inconsistent instruction can also confuse dyslexic students. A worksheet which the students brought from their classroom to complete during the remedial instruction helped to explain some of their responses on the TOWL-3. A skill addressed in the elementary grades is that of sentence combining. Given the sentences "The cat is small" and "The cat is white," many children can successfully combine them into "The cat is small and white." However, the fourth grade students in this study encountered confusion as the sentences became more complex. The task which they had been asked to complete in the classroom involved the use of commas. They were to make compound sentences from simple sentences. For example: "Canada is a country." and "It is in the northern hemisphere." was to be combined into "Canada is a country, and it is in the northern hemisphere." Using this guideline, on the TOWL-3, the student will miss the point for that sentence. The correct answer would be "Canada is a country in the northern hemisphere." The students in this study scored poorly because they failed to combine the sentences

correctly for that particular test. It would seem that the sentence "Canada is a country in the northern hemisphere" would be more appropriate in written language than "Canada is a country, and it is in the northern hemisphere."

In Davis School District the turnkey trainers in the Dyslexia Department have trained many elementary teachers in *Project Read* – Phonology, Linguistics, Report Form and Story Form Comprehension, and Written Expression. It would seem logical that when a school has an identified dyslexic student, that student should be placed in the classroom of one of these trained teachers. However, identified students are spread out among all teachers, trained and untrained. The argument is made that placing too many low-performing students in one class creates an unhealthy learning environment. Since student standardized test scores are included in the criteria for rating schools and individual teachers, these students are erroneously viewed as deficits to the school because of potential low test scores. However, a closer look at the standardized test scores will reveal that they often score well when the test is read aloud to them. This accommodation is allowable for these students; furthermore, it is their civil right under Section 504 of the Individual with Disabilities Act. The dyslexic students in this study had average to above average scores on the Iowa Test of Basic Skills (ITBS), even in reading. Those students who made the most progress were in classrooms with teachers trained in *Project Read*.

Another difficulty for many students in Davis School District is the mobility of the teachers. Many classrooms each year do not have the same teacher for the entire year. Pregnant teachers may begin the year, stay for a month, take maternity leave for six weeks, and then return just in

time to prepare for standardized testing. In other situations new classrooms are opened to allow for smaller class sizes, and the dyslexic students are given to the new teacher. Often these new teachers, as well as the substitutes for absent teachers, lack experience or training in multisensory structured language (MSL) programs.

Parents of dyslexic students often indicate that their children are not receiving the appropriate assistance to be academically successful. Some complain that their children report they that they are not given adequate time to complete written assignments or that they don't receive oral testing in the content areas. These parents report a desire for their children to learn to read and write. Even with the availability of oral testing in the content areas on standardized testing, the parents exhibit a vital interest in instruction that will enable their children to be independent readers and writers. They do not want to handicap their children, but they are determined to see that each child is being treated with respect and fairness.

Parents also express concern that their children sense that they are being blamed by the teacher for the difficulties they are having in the classroom. Some parents report that teachers actually "threaten" the children, saying that they must try harder if they want to get out of that grade. While students must develop strategies to become independent learners, many of them are truly trying to do better. In the video *"How Difficult Can This Be?"* Rick Lavoie (1990) makes the point that these students are already working harder than their classmates. Since they have a learning difference their efforts are not bringing them the success we would like for them to have.

Dyslexia is a genetic condition; therefore the parents are likely to have similar characteristics. Many were unsuccessful in school themselves and may have a distrust of the educational system. They may be intimidated by the school personnel because they don't understand the system. They want their children to be more successful than they were but do not know how to assist them. Their efforts to provide a more productive educational climate are often viewed, albeit erroneously, as attempts to reduce the academic responsibility of the student or as attacks on the teacher or school. The school's expectation for help at home is often miscommunicated or misunderstood. As a result, the teacher perceives the parent to be uncooperative, and the parent believes that the teacher is being unfair to his or her child.

In this state, the State Department of Education has provided funds that have been used to provide extra teachers in order to reduce classroom size in kindergarten through third grade. The dyslexic students in Davis School District have been placed in classrooms with as few as 14 children. They have received extra instruction in after-school programs and in pullout programs delivered by "master teachers." Although these settings provide opportunities for extended time and tests read aloud, unless the instruction is designed to meet the needs of students with language processing disorders, those students may continue to fail. Many parents whose children were in these special programs report no improvement. Teachers mistakenly assume that the student simply isn't trying to learn. Perhaps the most distressing result is that the student becomes convinced that he or she is stupid and

unable to learn. The school system has failed to instruct these children.

Ethical considerations

Family structures have changed radically in the past two generations. Two parent homes have become the exception rather than the rule, and family time together seems rare. While the schools seek parental support, families are expected to fit the mold of the perceived model. Because absences from school can adversely affect a child's academic progress, one teacher's comment reflected her disapproval of parental decisions. She complained that the student had been absent too much; he sometimes accompanied his father on hunting trips and was allowed to go out of town to car races during school time. While discouraging absences is a valid concern, as teacher we may need to rethink what we are trying to accomplish. Instead of punishing the child for time missed at school, it would seem more productive to attempt to build a bridge of understanding with the parents, making sure they realize the negative impact of too many absences. Instead of criticizing their lifestyle, perhaps it would be more productive to enlist their help in the education of their child while on these excursions. Home schooling has become more popular as public school has sought to control the child's life. Although the dyslexic child is certainly in need of consistent instruction, he may learn valuable life skills while spending time with his parents.

Thomas West, a man associated with the National Dyslexia Research Foundation, suggests that different kinds of problems encountered in a community may require different kinds of talents to solve. In his book *In the*

Mind's Eye (West, 1997), he points out that many people who have excelled in their fields have had brains which differentiated from the norm. Thomas Edison, Winston Churchill, and Albert Einstein are among the many people believed to be dyslexic. Mr. West mentioned a number of Nobel Prize winners whose brains have exhibited characteristics of dyslexia. Although it is imperative that our country provides quality education with high standards, if we are to compete in today's world. It is equally important that we become sensitive to individual differences. Just as we would never expect a rose to grow into a tree or a cat to be able to fly, we must be aware that all children are not destined to perform well academically. We must improve our teaching strategies so that each child has the opportunity to learn to read and write effectively enough to communicate as adults. However, the children with brains which process information differently may not relate well to the printed word. Instead they may become great artists, musicians, athletes, mechanics, scientists, etc. Their brains are designed to see the world in a different way.

Implications

The quest for high academic standards is a valid one. With proper instruction all children can learn to read and write commensurate with their mental ability. However, in the push for better test scores, the focus on education of the individual child seems to become blurred. Stressed-out teachers produce tense children, and tense children are

less likely to perform well on tests. Ongoing improved staff development is necessary to train teachers to be diagnostic in their teaching. They must be able to recognize the meaning of student errors in order to correct the misunderstandings. No one method of teaching will meet the needs of every student, and teachers must be knowledgeable of, and free to use, a variety of strategies. Administrators will be rewarded with improved test scores when they become more supportive of inservices designed to equip the teachers with these tools. Educators may need to consider the ethical implications of attempting to make all students experts in academic endeavors.

Dyslexic students can be taught to read and write well enough to perform as successful adults. The educational environment can help or hinder their academic progress. Although much is known about the difference in brain functioning in dyslexia, many educators still lack an understanding of how to assist the affected children. Multisensory strategies have been available for decades, but few classroom teachers are trained to implement them on a daily basis. The move away from passing children on from grade to grade without mastery of skills has been a necessary one.

Sally Shaywitz (2001) reported that studies at Yale University have shown that brain processing activity in children changes after a year of daily instruction in a program designed for dyslexic students. The language processing necessary for reading actually begins to appear more like that of a non-disabled reader. She and her husband, Bennett Shaywitz, continue to study these children with the intent of determining whether the children will maintain the more normal brain processing patterns after

two or three years. This information suggests that providing appropriate instruction may produce dramatic results in children who have difficulty learning to read. It is very possible that retention would be unnecessary if the reading instruction matched the learning style of the student.

At this point in the state where this study was conducted, much is being mandated to promote higher standards. Unless individual classroom teachers are provided with on-going staff development designed to enable them to become diagnostic teachers and to implement a variety of strategies with their students, mandates have little effect. In addition, teachers need the support and understanding of administrators in providing appropriate instruction for children with different learning styles. Dyslexic students can become successful students when the instruction is tailored to meet their needs.

Suggestions for Further Research

The students in this study made progress in some written language and reading skills. Although they continued to show deficits in decoding and fluency, as well as in some written language skills, the goal for fourth grade is to provide the skills necessary to pass the LEAP test. Five of the six students had been retained at least once, and the retentions were related to their reading difficulties. Several questions emerge which could form the basis for further studies:

1) If reading deficits were identified and appropriate remediation implemented in first grade, would retention be necessary for dyslexic students?
2) In this state dyslexic students are to receive instruction in a multisensory structured language program and receive their reading/language grades in this alternative program. Would this setting provide an opportunity for these students to become better prepared to function on the high stakes tests?
3) What classroom environments are necessary for dyslexic students to experience academic success? How can classroom teachers involve the strengths these students bring with them?
4) What preparation is necessary for teachers to be equipped to teach the diverse population of students found in many "regular" classrooms, including students with language processing disorders?

The educational system in this country does need to promote high academic standards. Children must be prepared to function effectively in an ever-changing and complicated world. Ways must be sought to provide optimal learning environments for intelligent children who struggle to read and write. Gordon Sherman (2001), who formerly worked at the Dyslexia Research Laboratory at Beth Israel Hospital, stated in a speech, "We don't need to fix the dyslexic brain." It's not broken or deficient; it is merely different. We must enable these children to find their strengths and capitalize on them as valuable persons in our communities.

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Appendix A
Letter to Superintendent of the School District

242 College Street
Shreveport, LA 71104
October 4, 2001

Dr.
Parish School Board

Dear Dr.

Last year I took a sabbatical to complete the coursework for a Ph.D. in Curriculum and Instruction at LSU. This year I am to conduct my study and complete my dissertation so that I will graduate in May.

My research has focused on the written language of dyslexic students. Although dyslexia is defined as a language disorder which is manifested in difficulties in reading, writing, and spelling, the focus has generally been on the reading remediation. Project Read, the multisensory structured language program used with dyslexic students in this parish, contains a written expression component. I was trained in that component in Baton Rouge last July as a part of a state-wide grant and am using that material in the remedial instruction I am providing to elementary students. As my dissertation study, I plan to look more specifically at the writing progress of dyslexic fourth grade students.

My study is a mixed design consisting of three questions:

1. Does the student's reading (decoding and comprehension) ability improve after instruction in a multisensory structured language program including a written language component?
2. How does instruction in a multisensory structured language program containing a specific written language component affect a student's written language?
3. How does a student's written language performance in a pullout setting compare to that student's written language performance in the classroom setting?

I have discussed my plan with my immediate supervisor and with the Director of the Special Services Department. I am currently providing remedial instruction for dyslexic

students in five elementary schools. With parental permission I want to gather data concerning the written language progress of the fourth graders I see on a regular basis. All schools and students involved will remain anonymous. Please inform me of permissions that must be obtained for this study, other than the permission of the parents and principals involved. I can be reached at the Special Programs Office, 861-1331, or at home, 221-1912.

Sincerely,

Carolyn Gore

Appendix B
Letter to Director of Special Services

242 College Street
Shreveport, LA 71104
August 8, 2001

Director of the Department of Special Services
School Board

Dear Dr.

I am requesting permission to conduct the research for my dissertation with dyslexic students in the elementary schools in School District.
I have discussed my plan with my immediate supervisor, Mrs. . The study will be implemented in a pullout program involving six identified dyslexic students at the elementary school level, and I will keep her informed of the progress of these students.

If you have any questions, I may be reached at
or at the address listed above.

Sincerely,

Carolyn Gore

Appendix C
Letter to Supervisor of Dyslexia Department

242 College Street
Shreveport, LA 71104
July 25, 2001

Supervisor of Dyslexia Department
School Board

Dear Mrs.

I am requesting permission to conduct the research for my dissertation with dyslexic students in the elementary schools in School District.
We have previously discussed the plan to be implemented in a pullout program involving six identified dyslexic students at the elementary school level, and I will continue to keep you informed of the progress of these students.

If you have any questions, I may be reached at
or at the address listed above.

Sincerely,

Carolyn Gore

Appendix D
Letter to Principals of Elementary Schools

242 College Street
Shreveport, LA 71104
August 3, 2001

Dear Principal,

I currently a dyslexia teacher in Parish and am a Ph.D. candidate at Louisiana State University in the department of Curriculum and Instruction. My major field of study is reading, and I am particularly interested in the effect of writing instruction on the reading/writing performance of dyslexic students.

I am requesting permission to conduct the research for my dissertation with fourth grade dyslexic students at your elementary school. I have received the approval of my supervisor and she has chosen the students for me to observe. I will be with them in a pullout setting two 40 minute periods each week, beginning in September. In addition I will occasionally observe those students in their regular classroom setting.

I will be happy to meet with you to answer any questions concerning this study. You can reach me at 861-1331 or at the address listed above.

Sincerely,

Carolyn Gore

cc: Mrs.

Appendix E
Letter to Parents

242 College Street
Shreveport, LA 71104
August 17, 2001

Dear Parents,

I am a graduate student at Louisiana State University in Baton Rouge studying reading. As part of the requirements for my degree, I will be doing research with dyslexic students in Parish. I have permission from in the Dyslexia Department and from the principal at your school.

I will be studying the relationship of reading and writing in dyslexic students. I will work with these students in a pullout program two days each week beginning September 4 using Project Read materials. For my research I will collect writing samples and observe students as they read and write.

I need your permission so that I can observe your child as he/she reads and writes. All of the children in this study will remain anonymous. Please complete the bottom of this letter and return it to your child's classroom teacher.

Thank you for this opportunity. If you have any questions, please call me at 861-1331.

Sincerely,

Carolyn Gore

++

I give permission for my child, _____, to participate in Mrs. Gore's study. I understand that she will work with my child in a pullout program, observe him/her in the classroom, collect work samples, and write a report of her findings. I understand that my child's identity will remain anonymous.

_____Parent's signature

_____ Date

Appendix F
Field Notes Protocol

Pullout setting –

1. Rate willingness to participate in writing activities by noting how quickly student writes to the prompt.
2. Record student questions related to the writing assignment.
3. Record correct responses vs. incorrect responses on structure of the sentence.

Classroom –

1. Observe number of times child volunteers to read in class.
2. Observe number of time child raises hand to answer questions in class.
3. Observe on task behavior in classroom.

Appendix G
Sample Lesson

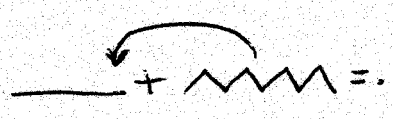
I. Students write a sentence in their notebooks using the concepts previously introduced.
II. Students review previous concepts and terminology (flash cards).
III. Teacher introduces the concept of subject describers:
Teacher places several different cups in a box labeled cup.
(paper cup, white cup, Pooh cup, measuring cup, styrofoam cup)
Teacher draws a rectangle on the board to show symbol for subject. There are five ways to describe the subject. One way is to describe what the subject looks like, or the physical characteristics of the subject.
Students pick a cup and describe it using a physical describing word. That word is written in the rectangle next to cup.
IV. Check for understanding – with teacher assistance students diagram sentences 1, 2, 4 on Framing Your Thoughts page 3-3.
Students independently diagram sentences 3, 5, 6.
Check for accuracy.
V. Review subject describer concept.

Appendix H
Symbols

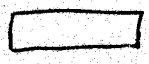
Sentence frame 

Subject 

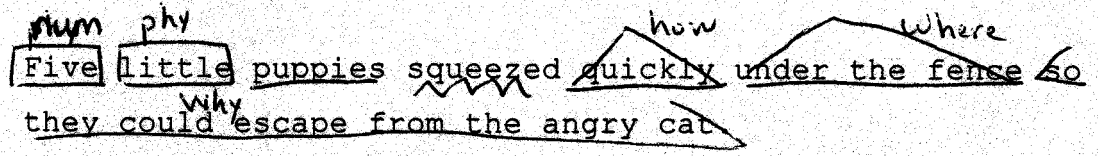
Predicate 

Sentence formula 

Predicate expander 

Subject describer 

Diagrammed sentence



Appendix I
Teacher Questionnaire

February 4, 2002

Dear Teacher,
I am currently working on my dissertation for my Ph.D. at LSU. My study concerns the written language performance of dyslexic students, and I have been studying the children I pull from your class. Please rate the student on the following items in comparison to other students in your class and return to me the morning of February 6. 2002.
Thank you,

Carolyn Gore

	Well Below Average	Below Average		Above Average	Well Above Average
1. Ability to read grade level material					
	1	2	3	4	5
2. Accuracy of oral responses	1	2	3	4	5
3. Accuracy of written responses	1	2	3	4	5
4. Participation in class	1	2	3	4	5

Does this student volunteer to read orally in class?

____ often

____ sometimes

____ never

Please feel free to add any comments concerning this student.

Appendix J
Parent Questionnaire

February 4, 2002

Dear Parent,

I am nearing the end of my study for my Ph.D. from LSU. At the beginning of the year you gave me permission to include information about your child in my study on the written expression of dyslexic students. Please respond to the attached questions and return to the school by Wednesday, February 6, 2002. I appreciate your input and the opportunity to work with your child. The anonymity of you and your child is protected in this study. No identifying information will be used, and all schools and children have been given pseudonyms. If you are interested in the results of my study, please let me know and we can plan a time to meet.

Thank you,

Carolyn Gore
861-1331
Child's name

_____

What do you consider to be your child's academic strengths?

When and how was your child identified as having the characteristics of dyslexia?

Has the school provided appropriate instruction and help for your child to be academically successful? Please explain.

How does your child view school and his academic success?

Please feel free to add any comments on the back that you think may be helpful in my discussion of dyslexic students.

Appendix K
GORT-4 Scores

Cameron

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.6	7.6	7.6	9.6		8.3	8.9	8.3	8.9
G.E.	2.4	2.4	2.4	4.4		3.2	3.7	3.2	3.7
%tile	16	16	9	50		25	37	37	37

Tom

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.3	7.3	7.3	8.0		7.0	6.9	6.9	8.9
G.E.	2.2	2.2	2.2	3.0		2.0	1.7	1.7	3.7
%tile	2	5	2	16		1	2	<1	16

Jeff

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	6.0	6.9	6.6	8.3		7.3	7.6	7.6	11.6
G.E.	1.0	1.7	1.4	3.2		2.2	2.4	2.4	6.4
%tile	1	1	<1	16		2	5	1	63

James

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	8.0	8.0	8.0	10.9		8.6	8.3	8.0	12.3
G.E.	3.0	3.0	3.0	5.7		3.4	3.2	3.0	7.2
%tile	5	5	2	37		5	5	1	63

Ralph

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	7.6	9.6	8.3	11.0		7.9	8.6	8.0	9.6
G.E.	2.4	4.4	3.2	6.0		2.7	3.4	3.0	4.4
%tile	5	37	16	63		5	16	9	37

Alex

Pre	Rate	Accur	Fluen	Comp	Post	Rate	Accur	Fluen	Comp
A.E.	<6.0	6.0	<6.0	11.0		6.9	6.6	<6.0	10.6
G.E.	<1.0	1.0	<1.0	6.0		1.7	1.4	<1.0	5.4
%tile	<1	<1	<1	37		1	<1	<1	37

Appendix L
TOWL-3 Scores

Cameron

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	7.6	<7.0	7.0	<7.0	7.6			8.3	<7.0	<7.0	7.0	7.6	
G.E.	2.4	<2.0	2.0	<2.0	2.4			3.2	<2.0	<2.0	2.0	2.4	
%tile	25	9	9	16	25	16		37	9	9	25	25	23

Tom

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	8.9	<7.0	<7.0	9.9			<7.0	8.3	7.6	<7.0	9.9	
G.E.	<2.0	3.7	<2.0	<2.0	4.7			<2.0	3.2	2.4	<2.0	4.7	
%tile	5	16	5	<1	25	<1		5	2	16	<1	25	4

Jeff

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	8.9	8.6	8.6	9.3			<7.0	8.9	7.6	8.6	10.6	
G.E.	<2.0	3.7	3.4	3.4	4.2			<2.0	3.7	2.4	3.4	5.4	
%tile	9	25	25	25	37	19		9	25	16	25	50	73

James

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	<7.0	<7.0	7.6	<7.0	9.3			8.3	8.3	10.6	8.6	10.6	
G.E.	<2.0	<2.0	2.4	<2.0	4.2			3.2	3.2	5.4	3.4	5.4	
%tile	1	5	16	<1	25	4		16	16	37	16	37	8

Ralph

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	9.3	8.3	8.6	8.6	7.6			11.3	11.3	7.6	11.6	10.6	
G.E.	4.2	3.2	3.4	3.4	2.4			6.2	6.2	2.4	6.2	5.4	
%tile	37	25	25	25	25	50		63	63	16	63	50	61

Alex

Pre	Voc	Spell	Style	Logic	Com	Spon	Post	Voc	Spell	Style	Logic	Com	Spon
A.E.	9.3	7.6	9.6	7.0	11.3			10.9	<7.0	8.6	9.6	11.9	
G.E.	4.2	2.2	4.4	2.0	6.2			5.7	<2.0	3.4	4.4	6.7	
%tile	25	9	25	9	50	<1		37	5	16	25	50	1

Appendix M
Determination of Eligibility

Taken from Bulletin 1903 (2000)

A student shall be determined to have characteristics of dyslexia if the following criteria are met:

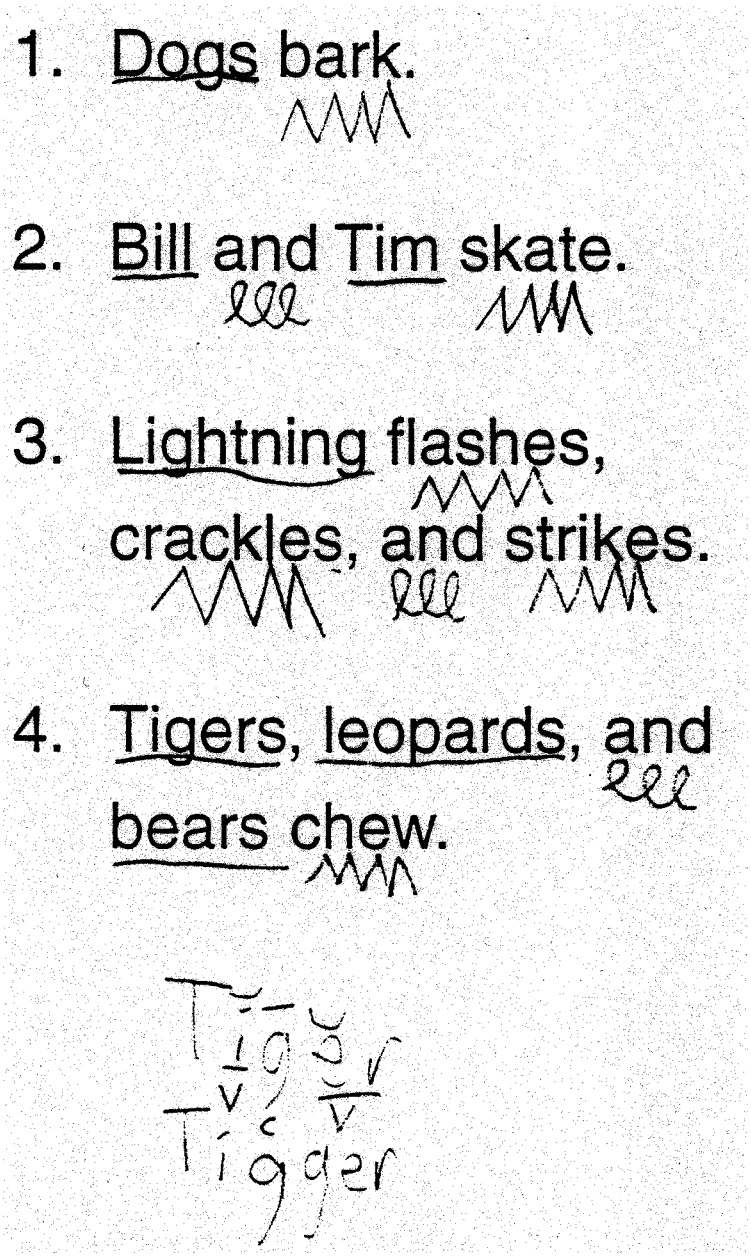
- The student has **adequate intelligence** demonstrated through performance in the classroom appropriate for the student's age or on standardized measures of cognitive ability.
- The student demonstrates difficulties in areas that are often unexpected in relation to age, previous instruction, and other cognitive and academic abilities. The student has had extensive remediation/assistance in order to maintain grades; however, deficits that were evident prior to remediation are to be considered. The student must demonstrate at least **five** out of **six** of the following characteristics:
  1) Lack of or limited phonological awareness;
  2) Common error patterns in reading and learning behaviors, such as
     - Reading, decoding inaccuracies in single words and nonsense words (e.g., detached syllables)
     - Slow reading rate
     - Omissions of, or substitutions of, small words (e.g., plant/pilot, a/the, of/for/from, three/there)
     - Reduced awareness of patterns in words
     - Difficulties generalizing word and language patterns
  3) Language (oral or written, receptive or expressive) simplistic or poor in relation to other abilities
  4) Errors in spontaneous spelling
  5) Spontaneous written language simple or poor in comparison with spoken language
  6) Poor organization and mechanics in spontaneous written language

Appendix N
Work Samples Showing Diagrammed Sentences

"bare bones" sentences

"bare bones" sentences with predicate expanders

"bare bones" sentences with subject describers


1. Dogs bark.
2. Bill and Tim skate.
3. Lightning flashes, crackles, and strikes.
4. Tigers, leopards, and bears chew.
Tiger
Tigger

Student Practice Sheet
Unit 1, Skill 4a
Diagramming and editing
Framing Your Thoughts Application and Transfer 1-85

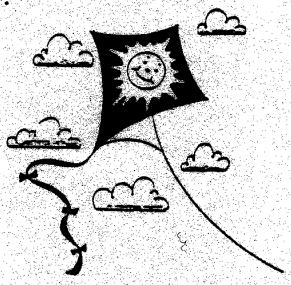
Directions:

1. Students write a barebone sentence for each picture.
2. Students diagram and edit sentences.

MODEL:

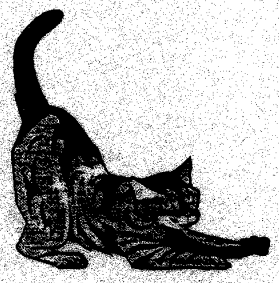
A The deer jumps.

1.



A he kite flys.

2.



A cat stretches.

Student Practice Sheet
Unit 1, Skill 4A
Diagramming and editing
Framing Your Thoughts Application & Transfer 1-81

1. The wind howled.
2. Tom and jack won.
3. An owl hoots.
4. The cakes, cookies, and rolls sold.
5. the kids swing slide and climb.
6. yellowstone national park burned.
7. The people sang.
8. The crowd cheered and booed.
9. Love heals.
10. The market closed.

Practice Sheet 2B
Framing Your Thoughts 2-21

Directions: Students diagram the following sentences.

1. The child peered timidly around the corner.

2. The boy darted like a deer across the field.

3. The breeze blew gently.

4. The fog crept like a cat over the city.

5. The boy waited patiently.

6. The program continued without interruption.

7. The stallion galloped freely across the field.

8. The teacher speaks in a quiet voice.

9. The children tumbled into each other like leaves before a storm.

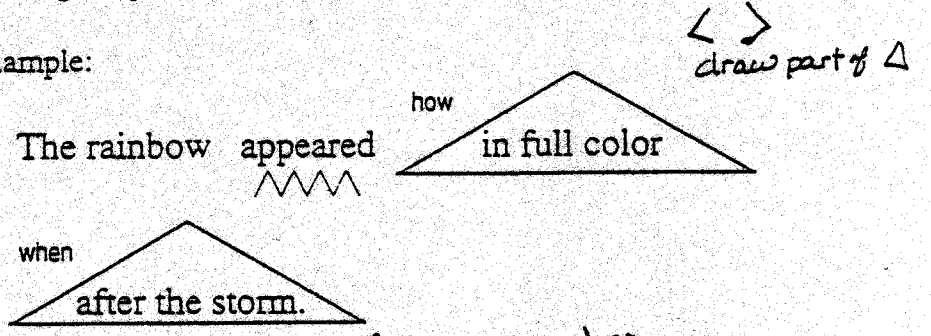
10. The children ran wildly out of the school

like animals escaping from their caves.

Practice Sheet 2C
Framing Your Thoughts 2-25

Students identify the sentence parts by drawing the symbols and labeling the predicate expanders.

Example:



1. The rainbow appeared

2. The river rose over its banks during the spring rains.

3. Dad jogs every morning before breakfast.

4. The dog bounded into the classroom during math class.

5. She sleeps until noon every Saturday.

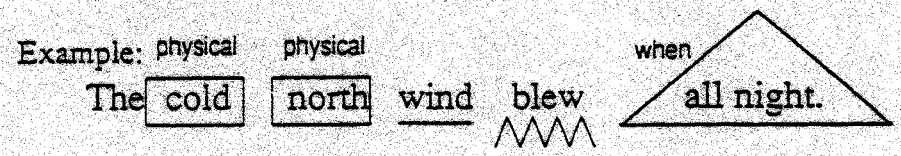
6. The goose honked nervously this morning as she protected her young.

7. The mallards strutted confidently across the street as the cars screeched to a stop.

Student Practice Sheet

Practice Sheet 2A
Framing Your Thoughts 3-3

Diagram the following sentences and label the subject describers and predicate expanders.



1. The brown paper sack fell on the floor.

2. With ease the graceful horse jumped over the fence.

3. With a crash the large wooden box fell to the floor.

4. Because the door was open the huge brown bear strolled into the cabin.

5. Brightly-colored fish darted around the tropical reefs.

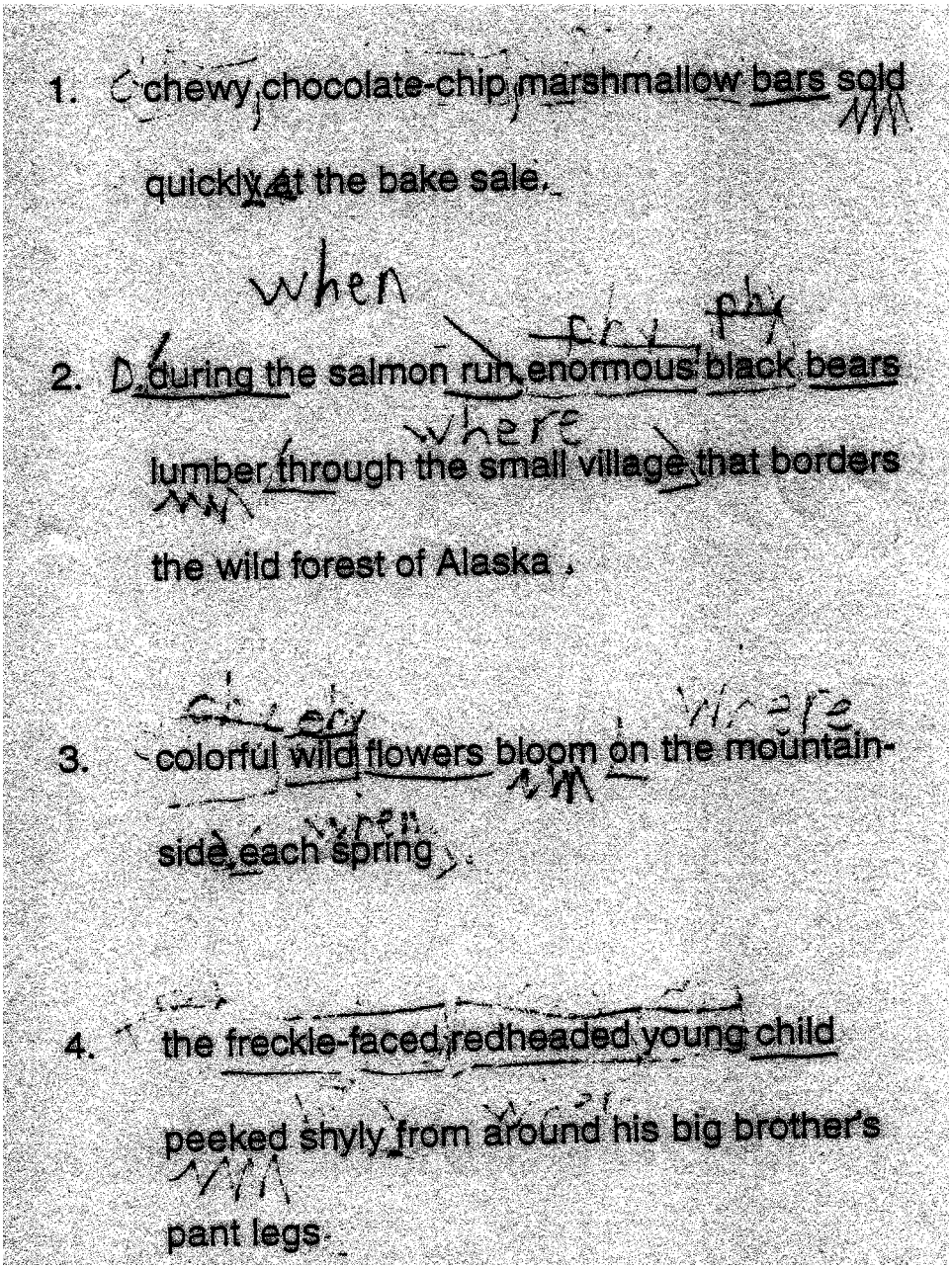
6. The huge rounded volcano rose above the skyline.

7. A tall sunburned youth walked along the beach.

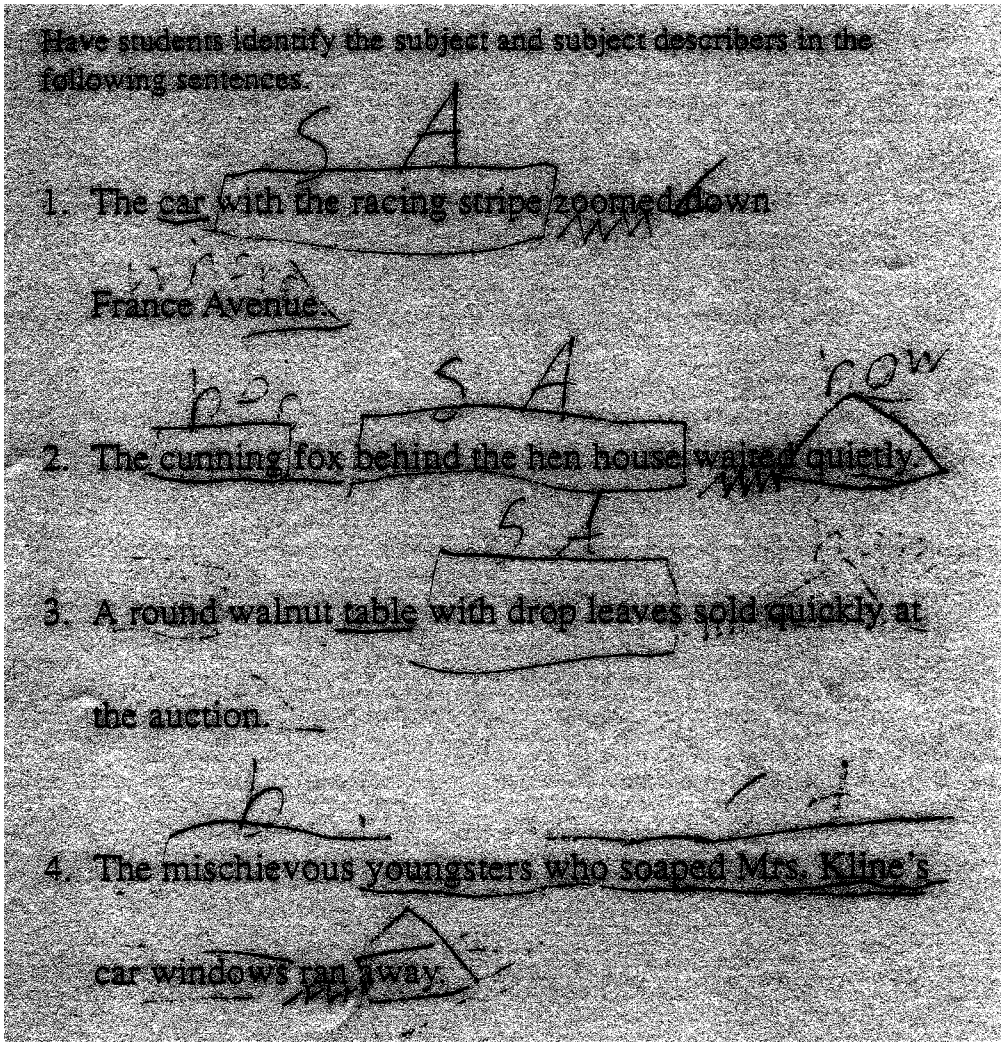
8. Beautiful flowers grow in my garden.

Student Practice Sheet
Unit 3, Skill 2
Looks/physical characteristics
Framing Your Thoughts Application & Transfer 3-15

Directions:
1. With teacher assistance students read and diagram each sentence.
2. Students frame each sentence and put commas in place.

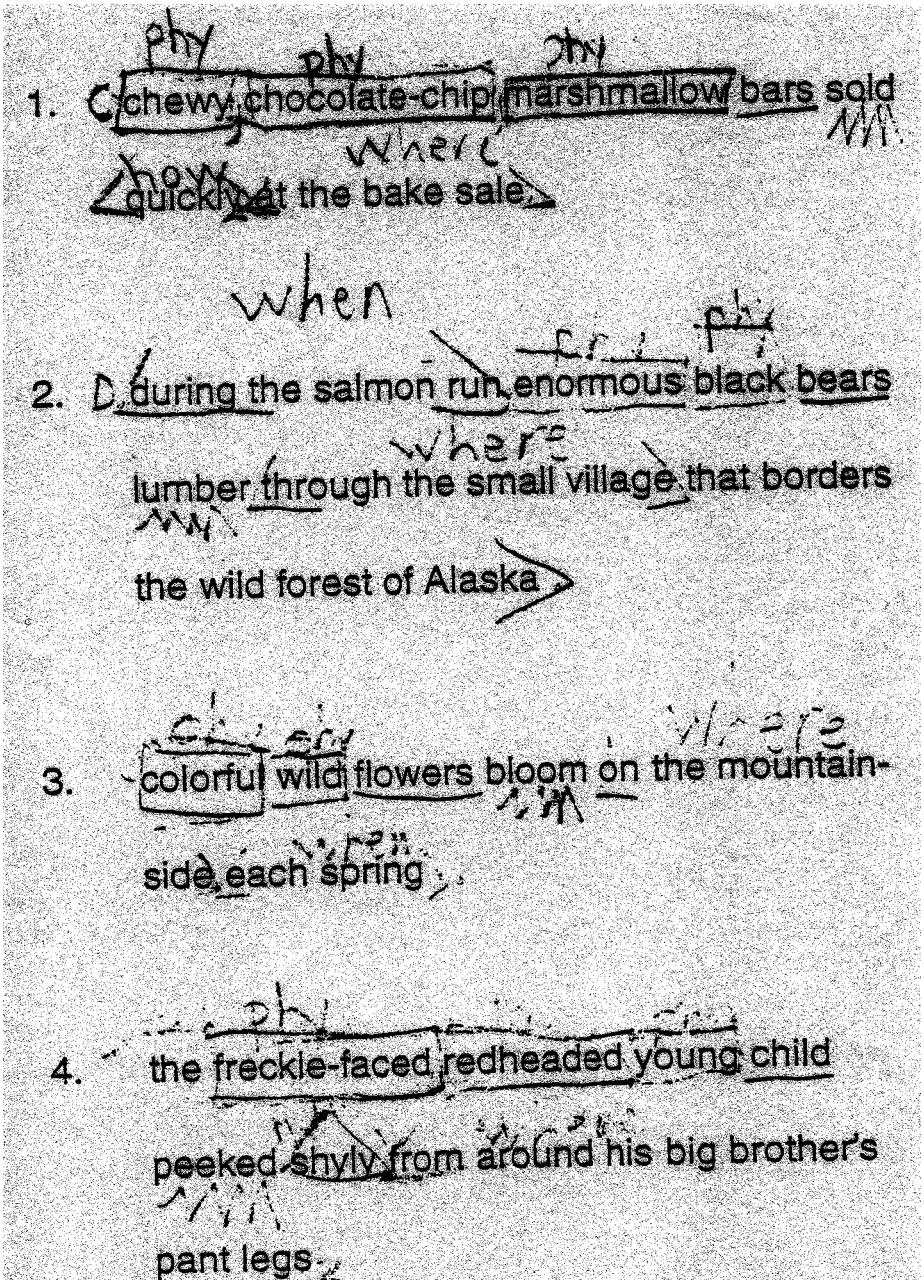


Practice Sheet 3F
Framing Your Thoughts 3-17

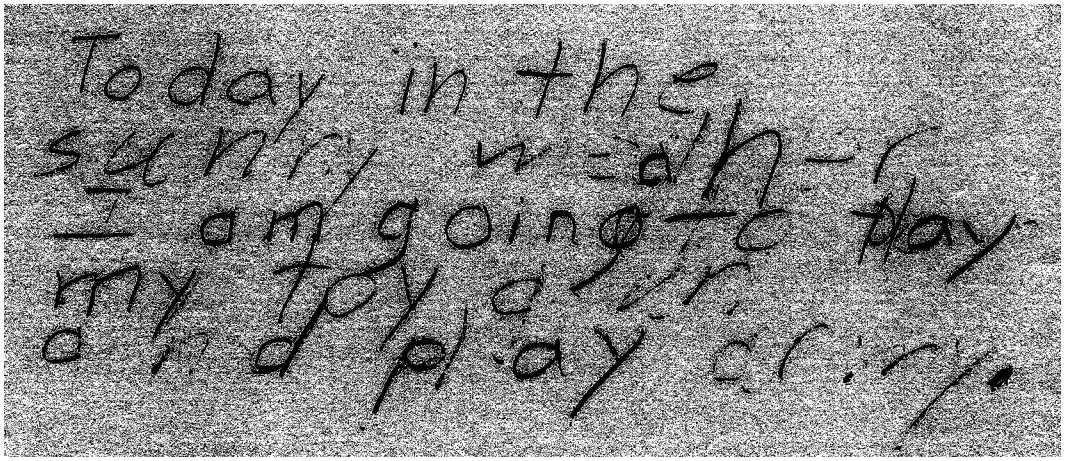


Student Practice Sheet
Unit 3, Skill 2
Looks/physical characteristics

Directions:
1. With teacher assistance students read and diagram each sentence.
2. Students frame each sentence and put commas in place.



Student sentence with predicate expanders –



Vita

Carolyn Williams Gore has taught in the public education system for thirteen years. For five years she taught in a self-contained special education class in elementary schools. For the next three years she served as the language enrichment teacher at a neighborhood elementary school. In that capacity she assisted kindergarten through fifth grade students with oral and written communication.

For the past five years Mrs. Gore has worked with dyslexic children in the public school setting. She provides remedial instruction in pullout programs and assesses children to determine if they exhibit characteristics of dyslexia. She has been trained in all components of *Project Read*, *Alphabetic Phonics*, *Multisensory Grammar*, *Scientific Spelling*, and *Written Composition.*

Mrs. Gore is a National Writing Project fellow and has conducted numerous workshops on writing for teachers. As a turnkey trainer she provides training in *Scientific Spelling* and *Project Read* Phonology, Linguistics, and Written Expression for teacher in her school district.